INTERNATIONAL®
CUB®
TRACTOR

INTERNATIONAL®

OPERATOR'S MANUAL

To The Owner

Your new International Harvester tractor is designed to meet today's exacting operating requirements. The ease and comfort of operation, the ability to match ground speeds to engine power and work requirement, and the effortless versatility of the hydraulic system are intended to lighten your work and shorten your hours on the job.

Your local International Harvester dealer is interested in the performance you receive from this tractor. He has factory trained servicemen, informed in the latest method of servicing tractors, and modern tools, and original-equipment IH service parts which assure proper fit and good performance.

To obtain top performance and assure economical operation the tractor should be inspected, depending on its use, periodically, or at least once a year, by your International Harvester Dealer.

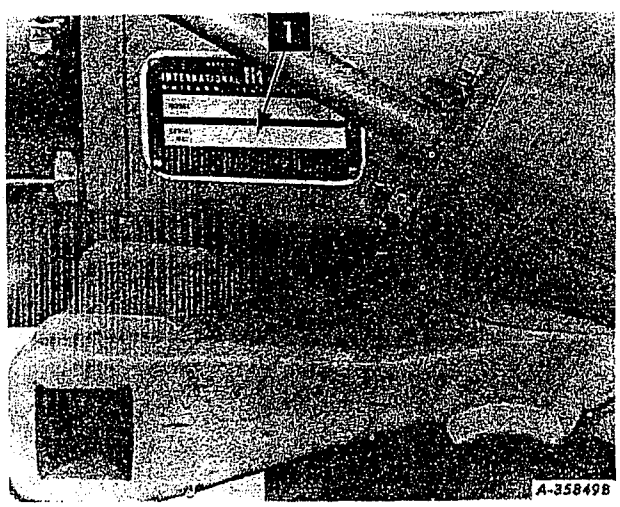
Before you operate the tractor, study this manual carefully. It has been prepared to help you operate and maintain your tractor with utmost efficiency. New copies may be ordered from your dealer at a nominal price.

When in need of parts, always specify the tractor and engine serial numbers, including prefix and suffix letters. Write these serial numbers in the spaces provided below.

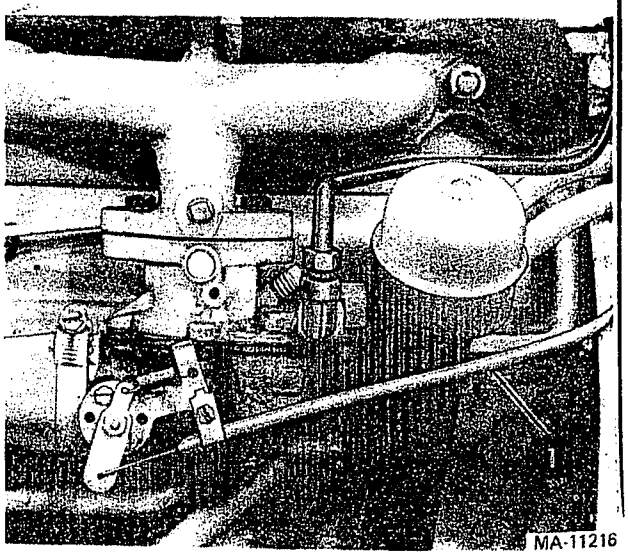
THIS MANUAL IS FOR TRACTORS WITH SERIAL NUMBER 248 125 AND ABOVE.

METRIC (SI) MEASUREMENTS

A standard of metric measurement known as International System of Units (SI) has been adopted for world-wide use. English Units followed by Metric Equivalents are used throughout this manual. (Metric Equivalents are given in parenthesis)



1 - Tractor Serial number _____



1 - Engine serial number_____

TECHNICAL PUBLICATIONS AVAILABLE

Your International Harvester Dealer and his factory trained servicemen are best qualified to service your equipment. Up-to-date instructions and adequate special tools are also a part of your Dealer's service facilities.

This Operator's Manual was prepared to instruct you in proper operation and maintenance of your equipment. If you desire additional information you may purchase Service Manuals and/or Parts Catalogs. Additional copies of the Operator's Manual are also available.

Fill out the order blank and forward together with your check or money order in the appropriate amount (U.S. Funds) to:

Cut Along This Line

Cut Along This Line

Title	Number	Qty.	Price Each
Operator's Manual			
International Cub Tractor	1 084 506 R1		
Parts Catalogs			
International Cub Tractor	TC-37F		
Service Manuals			
Chassis, Engine and Fuel System	GSS-1411		
Electrical Specifications and Wiring Schematics	GSS-1308-C		
Engine Tune-Up Specifications . .	GSS-1356		
Testing and Servicing Electrical Equipment	GSS-1052-C1		

TOTAL _____

Please Print

Name _____

Street Address _____

City _____

State _____

Zip Code

_____ _____

Date **Signed**

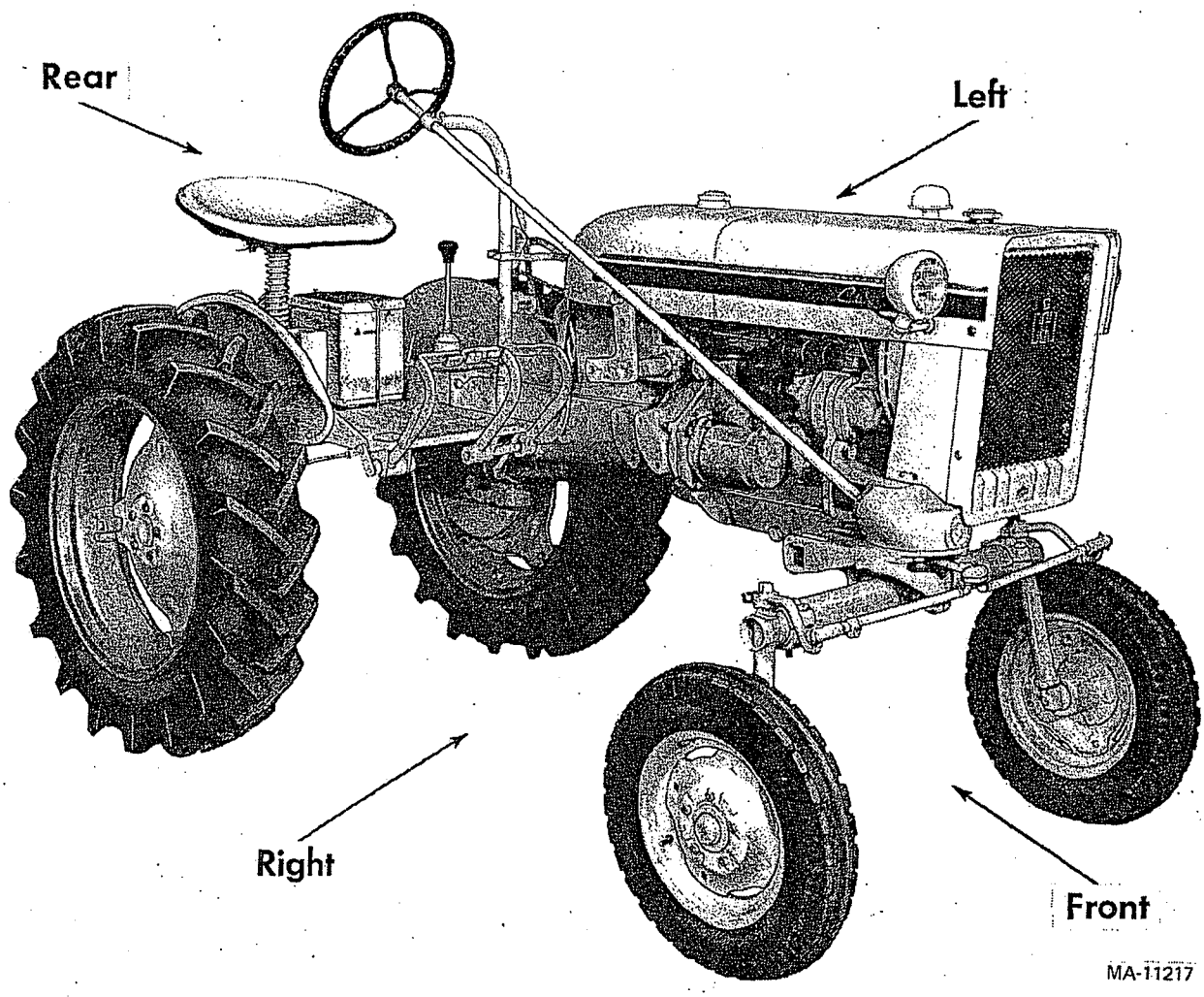
Do not send cash or stamps

Prices subject to change without notice.

CONTENTS

INTERNATIONAL HARVESTER

INTRODUCTION



International Cub Tractor showing terms of location.

Assembled in this manual are operation, maintenance and lubrication, instructions for International Cub Tractor. This material has been prepared in detail in the hope that it will help you to better understand the correct care, efficient and safe operation of the tractor.

Throughout this manual the use of the terms LEFT, RIGHT, FRONT, and REAR must be understood when following instructions to avoid confusion. LEFT and RIGHT indicate the left and right sides of the tractor when facing forward in the driver's seat. FRONT indicates the radiator end of the tractor; REAR indicates the hitch end.

⚠ CAUTION

Read the Operator's Manual.
Learn to operate this machine SAFELY.
Be alert. Observe ALL Safety Practices.
Machines can be hazardous in the hands of an UNFAMILIAR, UNTRAINED or COMPLACENT operator.
Don't risk INJURY or DEATH.

MA-10034

WORK SAFELY – FOLLOW THESE RULES

This symbol is used to call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions.

A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT

No one should operate this machine while under the influence of intoxicants or drugs (medications) that impair the senses or reaction.

Handle gasoline with care - it is highly flammable: - A. Use approved gasoline container. B. Never remove the fuel tank cap or fill the fuel tank when the engine is running, is hot, or indoors. Also, do not smoke when working around flammable fuel. Wipe up spilled gasoline. C. Before starting the engine, check the fuel tank cap to be certain it is tightened completely against the stop.

Remove the radiator cap only when the engine is cool to avoid possibility of severe burns or scalding.

Hydraulic fluid escaping under pressure can have enough force to penetrate the skin. Hydraulic fluid may also infect a minor cut or opening in the skin. IF INJURED BY ESCAPING FLUID, SEE A DOCTOR AT ONCE. Serious infection or reaction can result if medical treatment is not given immediately. Make sure all connections are tight and that hoses and lines are in good condition before applying pressure to the system. Relieve all pressure before disconnecting the lines or performing other work on the hydraulic system. To find a leak under pressure use a piece of cardboard or wood. Never use hands.

BEFORE STARTING

Know how to use the controls and how to stop the tractor and/or implement quickly. READ THE OPERATOR'S MANUAL THOROUGHLY.

Read all operators manuals and operating instructions for attachments.

To avoid accident or injury, any person who operates the tractor must be instructed in the safe operation of the unit, its attachments and all controls. An operator must be capable of safely operating all controls of the tractor and its attachments.

Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts to avoid entanglement in the moving parts. Never operate a tractor in bare feet, sandles, or sneakers.

Clean dirt, trash, and grease from operator's platform, pedals, steps, and steering wheel to prevent falling from the machine or loss of control which could result in serious injury.

Clear work area of foreign objects which might be picked up by the mower and thrown.

Check overhead clearance carefully before driving under power lines, guy wires, bridges, low hanging tree branches, entering or leaving buildings, or other situations where the operator may be struck or pulled from the tractor resulting in serious injury.

Turn off power take-off, depress clutch pedal, and shift into neutral before starting the engine.

DURING OPERATION

Keep machine in good operating condition and keep safety devices in place. Use guards or shields as instructed in Operator's Manual.

To prevent injury, do not carry passengers or give rides. Keep children, pets, and by-standers out of the area. Only the operator should ride on the tractor and only in the seat.

Do not run the engine in confined areas such as storage buildings any longer than is necessary for immediate moving of the tractor out of or into the area. EXHAUST GASES ARE TOXIC. OPENING DOORS AND WINDOWS MAY NOT PROVIDE ADEQUATE VENTILATION.

To reduce the possibility of serious injury, never direct discharge of material from any attachment toward bystanders nor allow anyone in the area of the machine while in operation.

Use care when pulling loads or using heavy equipment: A. Use only approved hitch points. B. Limit loads to those you can safely control. C. Don't turn too sharp, and use care when backing. D. Use counterweight or wheel weights when suggested in Operator's Manual.

To maintain control of the tractor and reduce the possibility of upset or collision operate the tractor smoothly – avoid erratic operation and excessive speed.

Reduce speed on slopes and in sharp turns to prevent tipping or loss of control.

Always keep the tractor in gear when going down steep hills.

Whenever possible, avoid driving the tractor on an incline auch as a ramp or slope. If necessary to move the tractor on an incline, whenever practical back the tractor up the incline and drive the tractor forward down the incline. Use extreme caution if it is necessary to drive the tractor up an incline or back the tractor down an incline because the front of the tractor could lift and rapidly flip over backward which could cause serious injury.

If absolutely necessary to operate the tractor across an incline such as a ramp or the face of a slope, operate the tractor with the engine on the uphill side.

Stay alert for holes, rocks, tree stumps and other hazards in terrain which could cause an upset or loss of control which could result in injury.

Shift transmission to neutral and set park brake, turn off power to any attachments and stop engine before leaving operator's seat to make any repairs or adjustments, to unclog power driven machinery or to attach implements. Wait for all motion to stop before dismounting the tractor.

Stop the machine and inspect for damage after striking an object. Repair any damage before restarting and operating the machine.

Watch out for traffic when near or crossing roadways.

Before backing the tractor always look for obstacles or bystanders in the area where the tractor will move.

Avoid heavily-traveled roads when moving equipment, if at all possible.

When moving on public roads, or from field to field, lock brake pedals together for simultaneous operation when making a stop to reduce the possibility of loss of control and upset or collision.

Reduce speed when traveling on rough roads to avoid loss of control and upset or collision.

Be courteous, have consideration for other traffic using the road. Drive defensively.

TRANSPORTING

Use flags, S.M.V. (Slow Moving Vehicle) emblem, lights, and/or other warning devices which are approved for use by your local government agencies, when moving equipment on public roads. Keep these devices clean and in good working condition.

Be sure hitches and/or drawbars are properly stabilized before towing equipment to reduce possibility of loss of control and upset or collision.

Shut off power to any attachment when transporting or not in use.

AFTER OPERATING

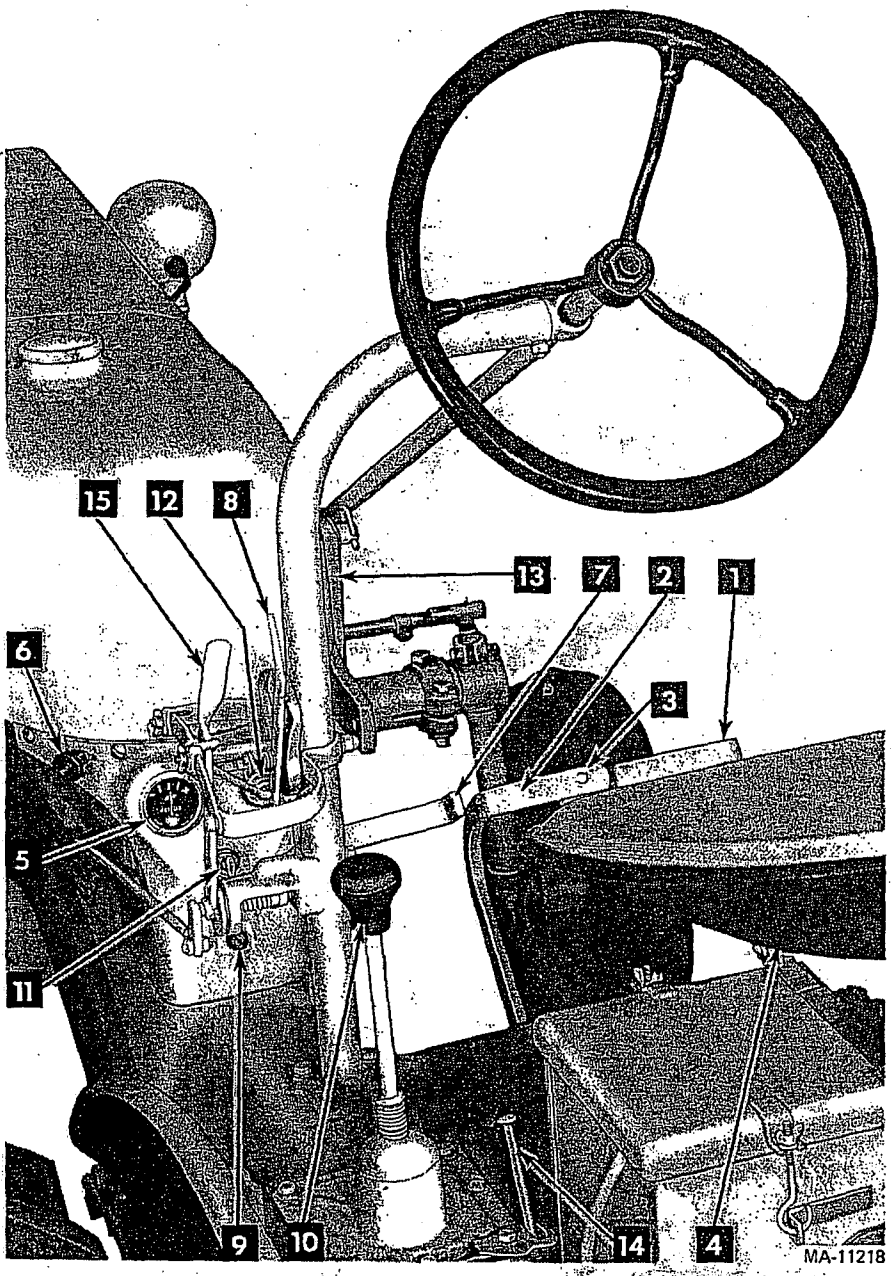
Lower equipment to ground before leaving tractor to avoid the possibility of the equipment dropping and causing injury.

To reduce the possibility of movement of the tractor or its use by unauthorized operators which could result in an accident and injury, always turn off the power take-off, shift transmission into neutral, set the parking brake, stop the engine, and remove ignition key when leaving the machine unattended.

INTERNATIONAL HARVESTER

INSTRUMENTS AND CONTROLS

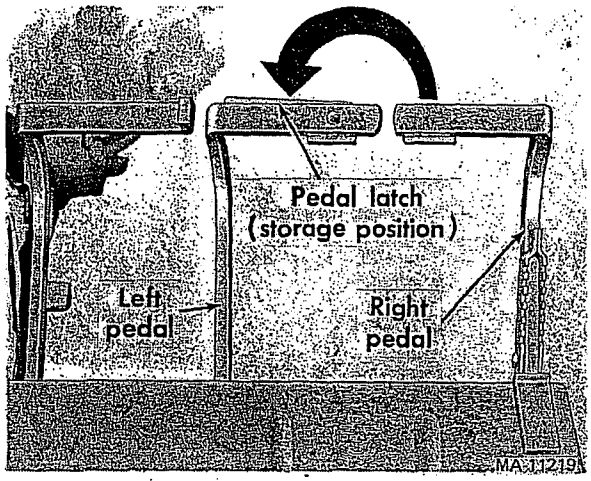
Before attempting to start or operate the tractor, be sure to review all the instructions for the new tractor and thoroughly familiarize yourself with the instruments and controls.



1 - Right brake pedal
2 - Left brake pedal
3 - Brake pedal latch
4 - Brake pedal lock (not seen)
5 - Charge indicator
6 - Choke control
7 - Clutch pedal
8 - Engine speed control lever
9 - Fuse holder
10 - Gearshift lever
11 - Ignition switch
12 - Lighting switch
13 - Oil pressure gauge (not seen)
14 - Power take-off shifter rod
15 - Touch control lever

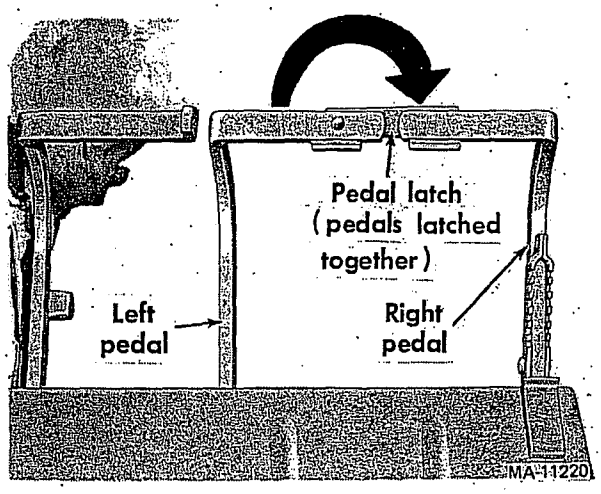
BRAKE PEDALS

Two pedal brakes are used to aid in turning the tractor. Depress the right brake pedal to slow or stop the right rear tractor wheel, depress the left brake pedal to slow or stop the left rear tractor wheel. The tractor will turn in the direction of the wheel that is slowed or stopped.



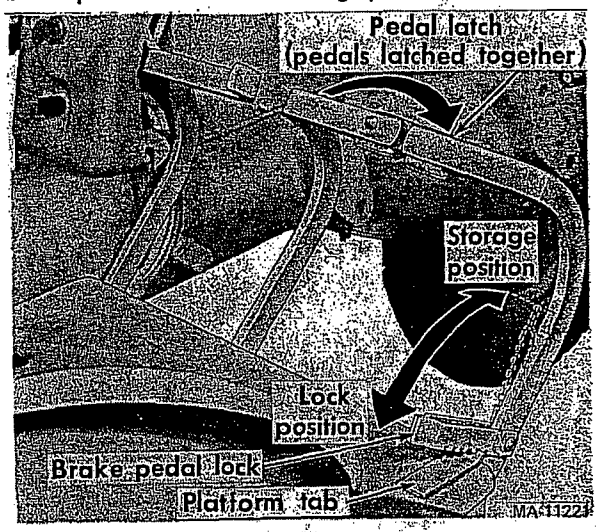
BRAKE PEDAL LATCH

The brake pedal latch is located in the top edge of the left brake pedal and is used to latch the two pedals together to provide simultaneous braking to both rear wheels when the brake pedals are depressed. To latch the pedals together, pivot the latch and engage it in the slot in the right pedal. For individual brake action, pivot the latch into the storage slot in the left brake pedal.



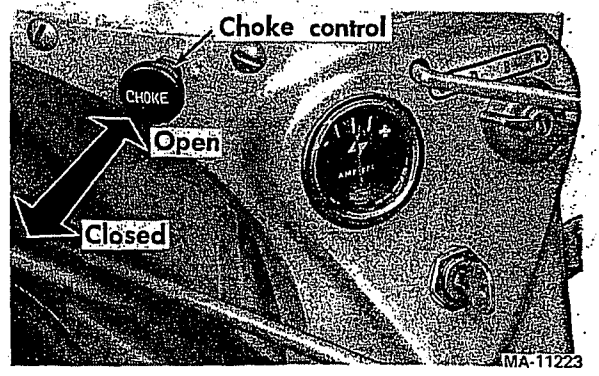
BRAKE PEDAL LOCK

The brake pedal lock, when engaged, holds the brake pedals in a depressed position. The pedals must be latched together to provide braking to both rear wheels, preventing movement of the tractor during stationary power take-off work or while the tractor is parked. With the brake pedals latched together, move the brake pedal lock rearward and depress the brake pedals until a notch in the brake pedal lock can be engaged against the platform tab. To release the brakes, depress the brake pedals until the brake lock is free. Move the brake pedal lock to the storage position.

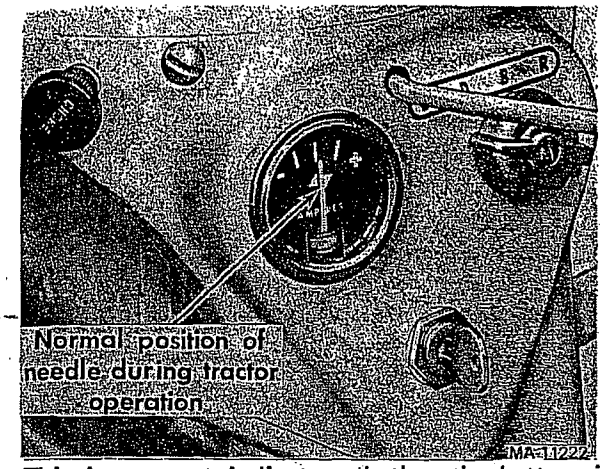


CHOKE CONTROL

The choke control, when pulled out closes the choke to aid the starting of a cold engine. When pushed in, the control opens the choke for normal engine operation. See "STARTING THE ENGINE".



CHARGE INDICATOR



This instrument indicates whether the battery is being charged or discharged.

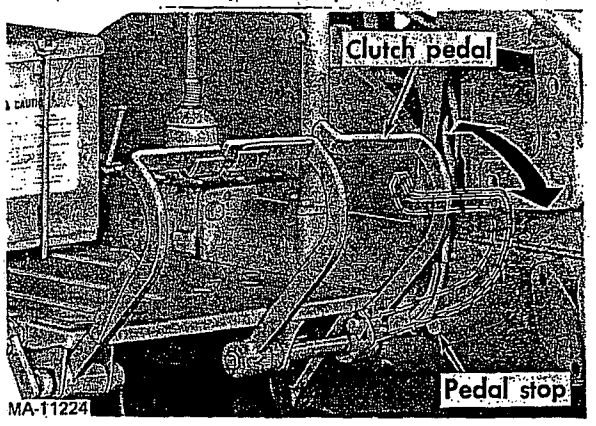
Needle positions from the top center mark towards the plus (+) symbol mark on the dial indicate the battery is being charged.

Needle positions from the top center mark towards the minus (-) symbol mark on the dial indicate the battery is being discharged.

During normal operation of the tractor with a fully charged battery, the needle should be slightly to the right of the top center mark.

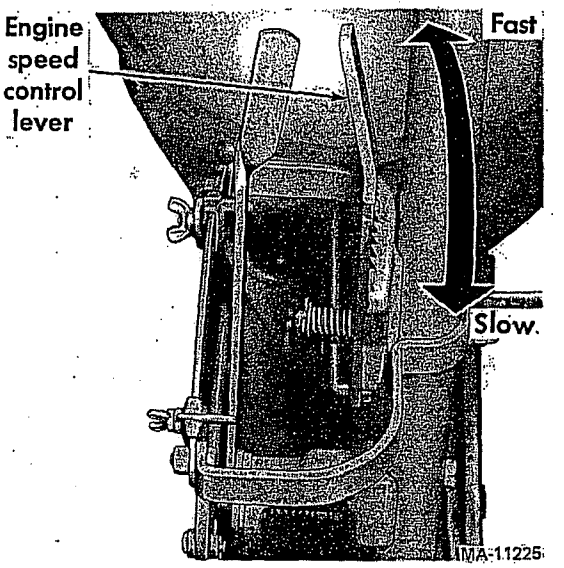
CLUTCH PEDAL

The engine clutch pedal is used to disengage the engine from the transmission when shifting gears. To disengage the clutch, press the pedal all the way down to the clutch pedal stop.



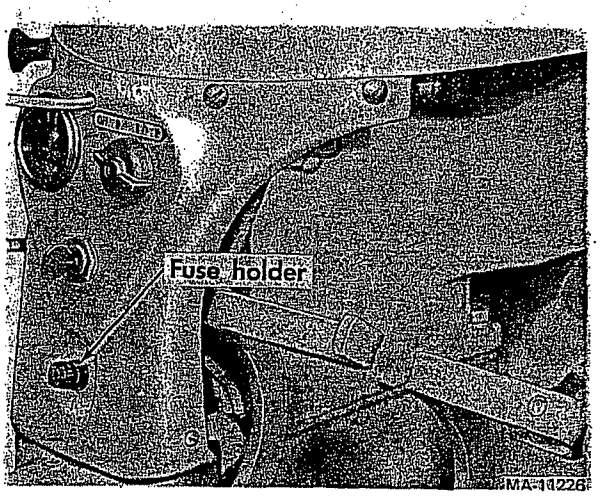
ENGINE SPEED CONTROL LEVER

This lever when pushed forward increases engine speed and when pulled back decreases engine speed.



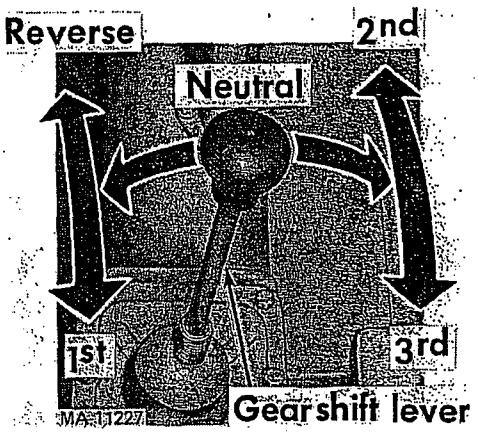
FUSE HOLDER

This holder contains the fuse that protects the lighting system. See "PREVENTIVE MAINTENANCE" for replacement instructions.



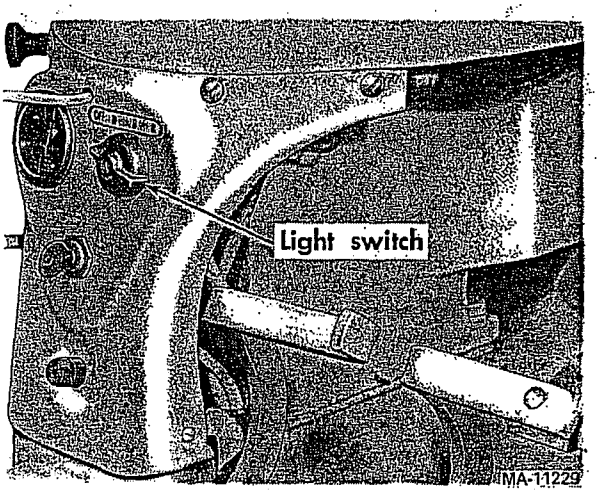
GEARSHIFT LEVER

This lever is used to shift the transmission gears into reverse or any of the three forward speed ranges.

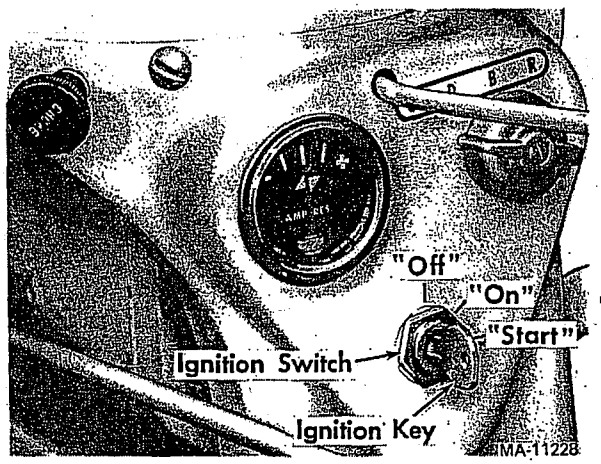


LIGHTING SWITCH

The switch has four positions: 'OFF" position; "D" position for dim headlights and red taillight; "B" position for bright headlights and red taillight; "R" position for bright headlights and a white rear light.



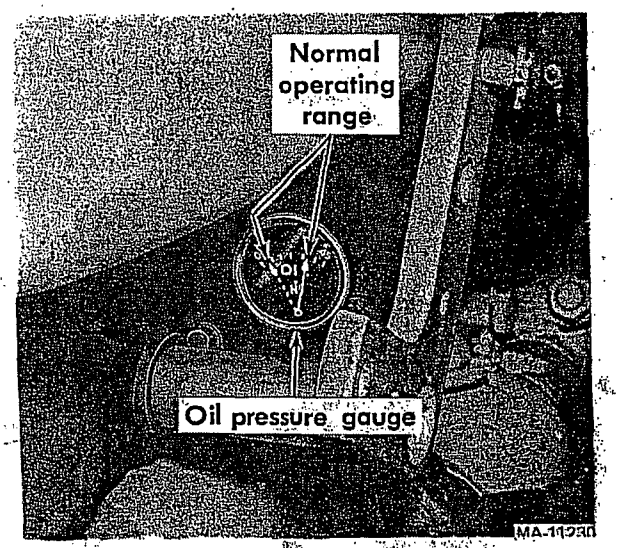
IGNITION SWITCH



Insert key into ignition with teeth facing upward.

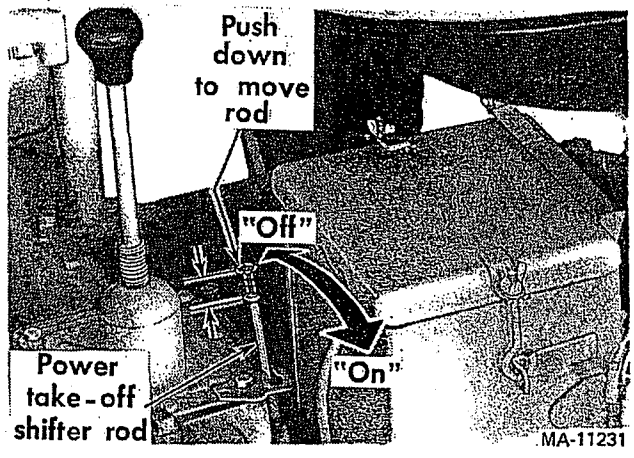
NOTE: The ignition switch can be turned off for an emergency shut down.

OIL PRESSURE GAUGE



The gauge indicates engine oil pressure. For a warm engine, the gauge needle will point to below the first mark at low idle and to above the fourth mark at normal engine speeds. If the needle falls to "O" during engine operation, stop the engine immediately and correct the cause.

POWER TAKE-OFF SHIFTER ROD



Push down on the shifter rod before moving. The shifter rod when moved forward, turns "OFF" the power take-off, and when moved rearward, turns "ON" the power take-off.

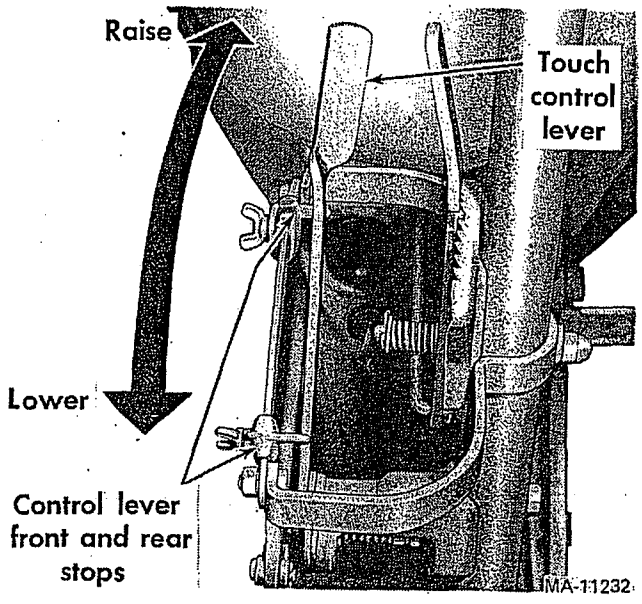
The shifter rod should always be in the "OFF" (forward) position when the belt pulley or power take-off is not in use.

TOUCH CONTROL LEVER
(With Adjustable Stops)

Pull the lever back to lower mounted implements. Push the lever forward to raise mounted implements.

The adjustable stops limit the amount the implement will raise (front stop) or lower (rear stop).

NOTE: The Touch Control system will operate only when the engine is running.



BEFORE OPERATING THE TRACTOR

CAREFULLY READ "WORK SAFELY – FOLLOW THESE RULES"

LUBRICATION

Check the oil levels of the engine crankcase, transmission and all gear cases to see that they are filled to the correct levels with oil of the proper viscosity for the prevailing temperature. Refer to "LUBRICATION GUIDE".

Lubricate the entire tractor as described in the "LUBRICATION GUIDE".

AIR CLEANING SYSTEM

Check all rubber hoses for cracks and be sure all hose connections are tight. See "AIR CLEANING SYSTEM"

Check, clean and refill the oil cup every day (more frequently when operating under dusty conditions).

TIRES

Check the air pressure in the pneumatic tires and inflate or deflate the tires to the air pressure specified in **"SPECIFICATIONS"** under **"TIRES"**. Tire treads should be cleared of rocks or other foreign objects that could be thrown from the tire causing personal injury or damage to the tire.

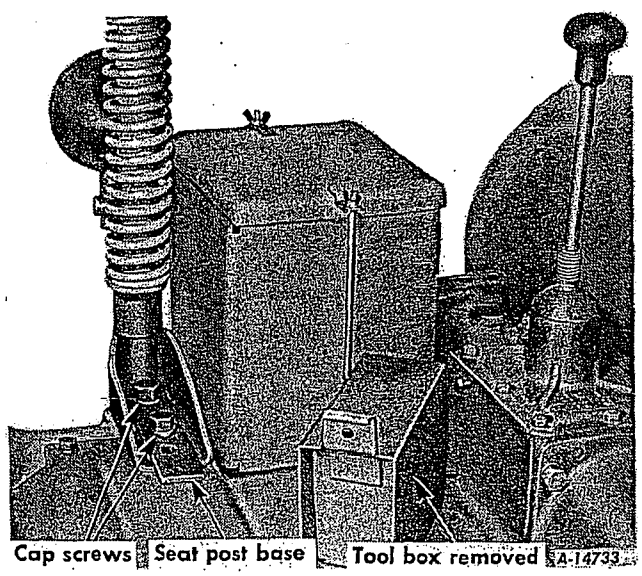
ENGINE COOLING SYSTEM

Be sure the coolant is at the correct level. **See "COOLING SYSTEM".**

NOTE: New tractors shipped to destinations in the United States and Canada have the cooling system filled with antifreeze solution. Be sure the antifreeze is adequate for prevailing cold temperature conditions. **See "COLD WEATHER PRECAUTIONS".**

Never start or operate the engine without water or antifreeze solution in the cooling system.

ADJUSTING THE SEAT



Before starting the tractor, adjust the seat by removing the tool box and the two cap screws in the seat post base. Change the position of the seat assembly by moving it forward or rearward to the position which is comfortable.

Reinstall and tighten the cap screws after the seat is adjusted and reinstall the tool box.

FUEL

CAUTION! Tighten the fuel tank filler cap securely against the stop after filling the fuel tank.

This engine is designed to operate on leaded gasoline with a 93 minimum octane rating or on unleaded or low lead gasoline with a 91 minimum octane rating (Research Method).

The use of unleaded gasoline will lengthen spark plug and valve life, maintain engine performance longer, and reduce rust and corrosion of engine while stored.

Use clean fuel and keep it clean. Store fuel in tanks equipped with hose and nozzle to prevent contamination of the fuel. The use of funnels, cans, and drums is not recommended because they are difficult to keep clean.

Allow space for fuel expansion when adding fuel to the tank. A tank filled to capacity may overflow if exposed to a rise in temperature or direct sunlight.

Before starting the engine, check the fuel tank cap to be certain it is tightened completely against the stop.

CAUTION! Never remove the fuel tank cap or fill the fuel tank when the engine is running or is hot, or when near an open flame. Do not smoke or light matches near flammable fuels, as the air within a radius of several feet is mixed with a highly explosive vapor.

TRACTOR BREAK-IN PROCEDURE

Never operate a new engine immediately under full load. Break it in carefully as shown in the table below.

Period	Engine Speed Control Lever Position	Load
1st Hour	Full Forward	None (Note A)
2nd through 5th Hour	Full Forward	Light

NOTE A: For the first hour of operation, the brakes are to be locked, the transmission in neutral, the power take-off disengaged, and the clutch pedal released.

Stay with the tractor while the engine is running to monitor the instruments and to prevent unauthorized operation. See "INSTRUMENTS AND CONTROLS".

OPERATING THE TRACTOR

STARTING THE TRACTOR

1. Open the fuel shut off valve. See "FUEL SYSTEM".

2. Be sure the brakes are in the locked position. Press the clutch all the way down, place the gear shift lever in the neutral position and turn off the power take-off. See "INSTRUMENTS AND CONTROLS."

3. Pull the choke control all the way out. See "INSTRUMENTS AND CONTROLS."

4. Set the engine speed control lever one-third advanced from the slowest position. See "INSTRUMENTS AND CONTROLS".

5. Insert the ignition key and turn it clockwise to the "START" position and release it as soon as the engine starts. See "INSTRUMENTS AND CONTROLS".

NOTE: The engine can only be started when the safety starting switch is activated by depressing the clutch pedal all the way down. Do not operate the starter for more than 30 seconds at any one time. If the engine does not start within this time, turn the key "OFF", wait a few minutes, then try again.

AFTER THE ENGINE STARTS

NOTE: Never operate the starter while the engine is running.

1. As soon as the engine starts, push the choke control knob in until the engine runs smoothly. As the engine warms up, gradually push the choke control knob all the way in. NOTE: The choke is used only to aid in starting a cold engine. Do not use the choke during normal operation.

Immediately after the engine starts, the oil pressure gauge indicator needle will move from "0" pressure.

If the indicator needle does not move from zero pressure on the gauge, stop the engine, remove the key, determine and correct the cause.

Operating without oil pressure will cause severe damage to the engine.

CAUTION! Do not run the engine in confined areas such as storage buildings any longer than is necessary for the immediate moving of the tractor out of or into the area. Exhaust gases are toxic. Opening doors and windows may not provide adequate ventilation.

2. Release the brake lock. See "INSTRUMENTS AND CONTROLS".

3. Turn front wheels in desired direction.

4. Adjust the speed control lever to the desired engine speed. The speed control lever should be 1/3 or less of the full or fast speed setting when moving the tractor in a confined area such as a garage or storage building.

5. Select the desired gear range for moving the tractor. See "DRIVING THE TRACTOR".

CAUTION! Check overhead clearance carefully before entering or leaving buildings, driving under power lines, guy wires, bridges, low hanging tree branches, or other situations where the operator may be struck or pulled from the tractor resulting in serious injury.

DRIVING THE TRACTOR

To Shift Gears

NOTE: Do not shift gears while the tractor is in motion.

1. Depress the clutch pedal.

2. Place the gearshift lever in the desired gear.

3. Slowly release the clutch pedal.

Selecting Gear Ranges

For ground speed, see "SPECIFICATIONS".

GEARSHIFT LEVER

The gear range (first, second, third) selected depends on the skill of the operator, soil condition, type of tillage, and many other factors. The following will provide a general guide to the use of the tractor with various attachments. See your attachment Operator's Manual for additional Information.

First gear
Heavy drawbar load, such as plowing.
Earth moving, as with a dozer blade.

Second gear
Medium draw bar load.
Snow plowing.

Third gear
Transporting on smooth roads.

Reverse gear
Backing the tractor.

CAUTION! Before backing the tractor always look for obstacles or bystanders in the area where the tractor will move.

BRAKE PEDALS

Two pedal brakes are used for individual braking of the rear wheels to aid in turning the tractor in soft soil conditions. Two pedal brakes are often used as turning brakes for plowing and other field operations.

CAUTION! Use the two pedal brakes as turning brakes only at low speeds to maintain control of the tractor.

CAUTION! Pedals must be latched together when operating the tractor in third gear.

CAUTION! When moving on public roads, or from field to field, latch brake pedals together for simultaneous operation when making a stop to reduce the possibility of loss of control and upset or collision.

DRIVING ON SLOPES

Before operating the tractor on any slope, walk the slope to look for possible hazards such as rocks, mounds, ruts, stumps or other surface irregularities which could cause an upset.

Set the front wheels and rear wheels to the maximum tread width setting for better stability.

NOTE: Latch the two brake pedals together before operating the tractor on a slope.

Drive up or down the face of a slope.

Back the tractor with front or mid-mounted implements up the steepest portion of each slope you intend to work. If the tractor can not negotiate the slope in reverse, the slope is too steep to be worked.

Avoid operating the tractor across the face of a slope. Operate the tractor with the engine on the uphill side of the tractor is absolutely necessary to drive across a slope. Operating with engine on the downhill side of the tractor greatly increases the possibility of a side rollover.

If absolutely necessary to operate the tractor across an incline such as a ramp or the face of a slope, operate the tractor with the engine on the uphill side.

Use first gear when driving on a slope. The tractor must always be in gear to take advantage of engine braking during operation on a slope.

Avoid turns when driving on a slope. If a turn must be made, turn down the slope. Turning up a slope greatly increases the chance of a roll over.

Avoid stopping when driving up a slope. If it is necessary to stop while driving up a slope, start up smoothly and carefully to reduce the possibility of flipping the tractor over backward.

STOPPING THE TRACTOR

1. Depress the clutch pedal.

2. Depress the brake pedals to stop and hold the tractor.

3. Move the power take-off shifter rod in the (forward) "OFF" position.

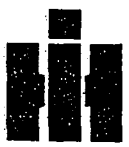
4. Move the engine speed control lever all the way back to decrease engine speed.

5. Shift the transmission gearshift lever into the neutral position.

6. Slowly release the clutch pedal.

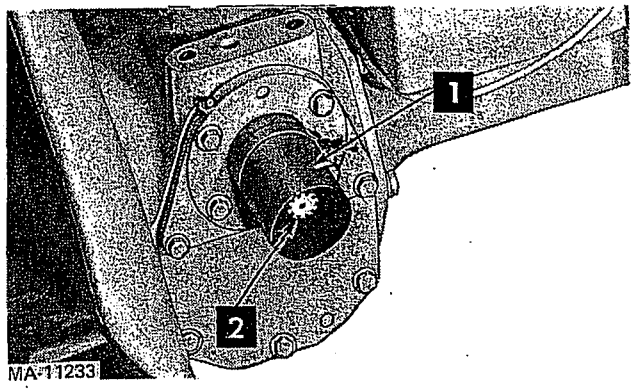
7. Latch the brake pedals together.

8. Lock the brake pedal in the depressed position.



INTERNATIONAL HARVESTER

POWER TAKE-OFF



1 - Power take-off shield
2 - Power take-off output shaft

If your tractor is equipped with a belt pulley or power take-off, the following instructions and precautions should be carefully studied and followed.

The power take-off is powered by the same engine clutch as the tractor. Be sure to disengage the engine clutch before moving the power take-off shifter rod.

The shifter rod should always be in "OFF" (forward) position when the power take-off is not used.

1. The transmission gearshift lever must be in neutral position.

2. Move the engine speed control lever rearward to low idle speed.

3. Depress the clutch pedal to release the engine clutch.

4. Press down on the shifter rod and move it rearward to the "ON" position. If the shifter rod does not move to the "ON" position, slowly release the tractor clutch while pushing rearward on the rod until the rod moves to the "ON" position. Then depress the clutch.

5. Advance the speed control to desired engine speed.

6. Select the desired transmission speed.

For stationary power take-off equipment, leave the transmission in neutral and lock the brakes.

7. Slowly release the clutch.

CAUTION! Be sure everyone is clear of the tractor and power take-off driven equipment before starting the power take-off.

CAUTION! When operating power take-off driven machines not equipped with an overrunning clutch (such as a rotary brush cutter), the following precautions should be taken:

Slowdown when approaching trees, fences, or ditches. Flywheel effect of the driven machine will drive the tractor forward after the engine clutch is disengaged. To stop the forward travel more quickly, retard the engine speed control lever, disengage the engine clutch, move the gear shift lever to the neutral position, and apply tractor brakes.

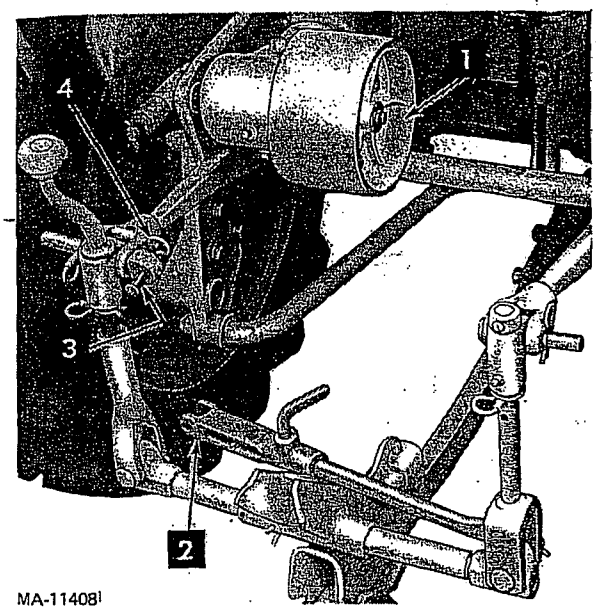
CAUTION! Always cover the power take-off exposed shaft with the power take-off shield.

NOTE: The power take-off on this tractor does not conform to A.S.A.E. and S.A.E. standards. This restricts the use of power take-off driven implements to those made specifically for this tractor.

Refer to "POWER TAKE-OFF SHAFT SPEED" under "SPECIFICATIONS" section of manual.

POWER TAKE-OFF DRIVEN BELT PULLEY

Observe the following instructions when using the tractor belt pulley:



MA-11408I

1 - Belt pulley
2 - Diagonal link
3 - Diagonal link pin
4 - Quick-attachable cotter pin

NOTE: When using the belt pulley with a tractor equipped with Fast-Hitch, the diagonal link must be disconnected as shown (See illustration) to avoid interference of the belt with the diagonal link.

1. Secure the equipment to receive power in the desired location.

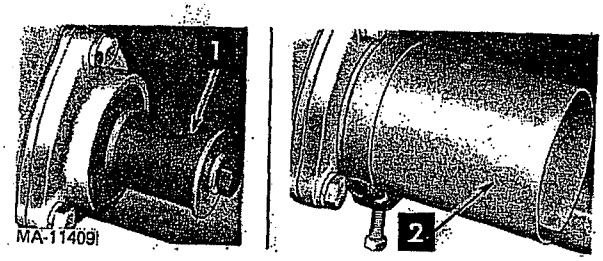
2. Align the tractor belt pulley with the equipment pulley. Keep the tractor level if possible.

3. Observe the direction of belt travel indicated on the belt, and install the belt accordingly to prevent damaging it.

4. Tighten the belt enough to prevent the belt from rubbing against itself during operation. Do this by driving the tractor into the belt, locking the brakes, and blocking the tractor rear wheels. (When using a very long belt or a crossed belt, it will not be possible to eliminate all rubbing).

5. Turn on power take-off as described in PTO section. Be sure transmission is in neutral before releasing engine clutch.

6. Gradually bring the tractor engine up to speed, making sure the belt is running true.



MA-11409I

1 - Pulley spacer
2 - Power take-off shield

When operations requiring the use of the belt pulley are completed, remove the pulley and replace it with the pulley spacer to the output shaft as shown.

The output shaft with the spacer should be covered with the power take-off shield to reduce the possibility of entanglement of the operator's clothing.

NOTE: Static electricity, generated by belt work, can be discharged harmlessly from tractors with pneumatic tires, by attaching a chain to the tractor and allowing it to touch the ground.

Refer to "BELT PULLEY" under "SPECIFICATIONS" section of manual for various belt speeds and pulley speeds.

CHANGING FROM POWER TAKE-OFF TO BELT PULLEY

Remove the power take-off shield with clamp from the power take-off output shaft.

Remove the two 3/8 x 1-3/8 inch cap screws and three 3/8 x 1-1/8 inch cap screws.

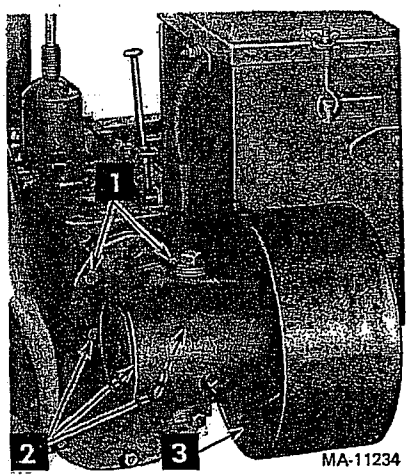
Apply a light coating of grease to the power take-off shaft and the female (inside) spline in the belt pulley housing.

Slide the belt pulley and housing on to the power take-off splined shaft.

Insert the two 3/8 x 1-5/8 inch cap screws with lock washers and the three 3/8 x 1-3/8 inch cap screws with lock washers (supplied with the belt pulley) and tighten all cap screws securely.

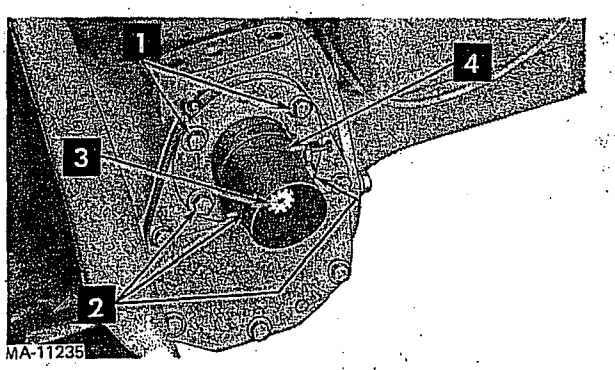
Periodically, check the lubricant in the Belt Pulley Housing as instructed in "LUBRICATION GUIDE" section of manual.

CHANGING FROM BELT PULLEY TO POWER TAKE-OFF



1 - Two 3/8 x 1-5/8 inch cap screws
2 - Three 3/8 x 1-3/8 inch cap screws
3 - Belt pulley

Remove two 3/8 x 1-5/8 inch cap screws three 3/8 x 1-3/8 inch cap screws and the belt pulley with housing. Set the belt pulley and cap screws in a convenient storage area for future use.

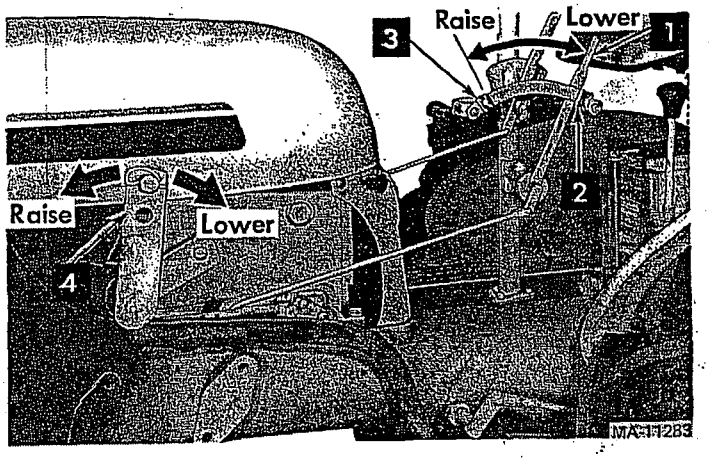


1 - Two 3/8 x 1-3/8 inch cap screws
2 - Three 3/8 x 1-1/8 inch cap screws
3 - Power take-off output shaft
4 - Power take-off shield

Replace the removed cap screws with the cap screws supplied with the belt pulley, by using two 3/8 x 1-3/8 inch cap screws and three 3/8 x 1-1/8 inch cap screws. Use flat washers in front of the lock washers and tighten the cap screws securely.

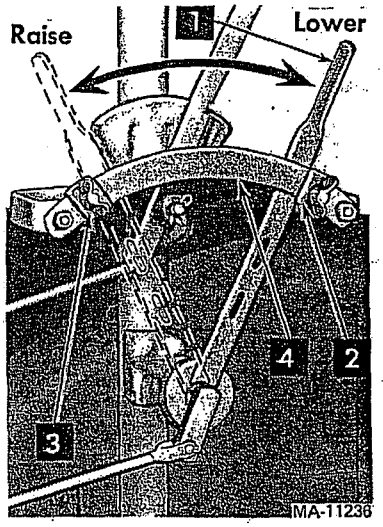
Cover the exposed power take-off output shaft with the power take-off shield with clamp for safety.

TOUCH CONTROL LIFT SYSTEM



1 - Touch control lever
2 - Control lever rear stop
3 - Control lever front stop
4 - Left rockshaft arm

The touch control lift system can be operated with the touch control lever whenever the engine is running. The raised or lowered position of an implement is controlled by the position of the touch control lever.



1 - Touch control lever
2 - Control lever rear stop
3 - Control lever front stop
4 - Quadrant

The stops on the touch control lever quadrant can be set so the implement such as a cultivator can be raised or lowered to a uniform position.

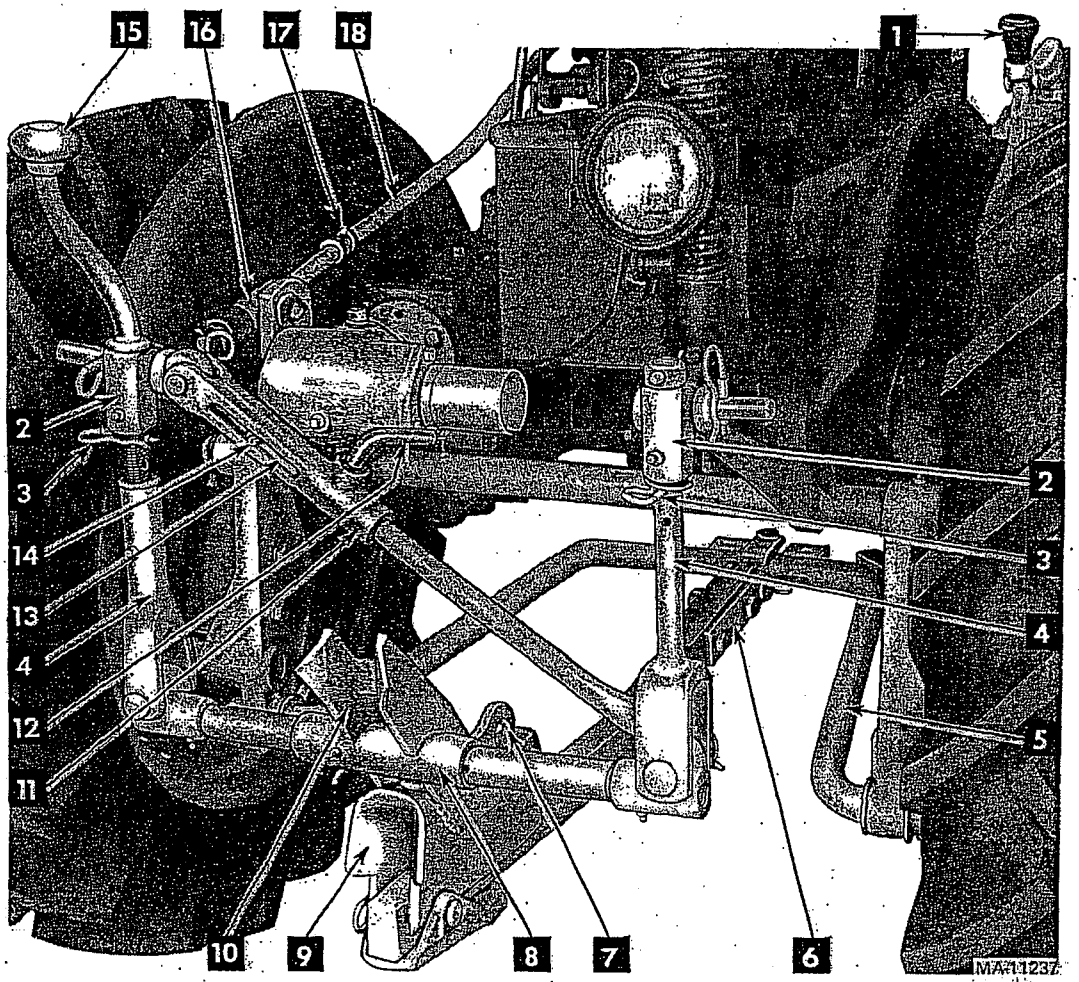
To set the lowered position of the implement slowly pull the touch control lever back until the desired position of the implement is achieved. Then loosen the wing screw on the rear stop and slide it forward on the quadrant until the stop contacts the touch control lever. Tighten the wing screw to lock the stop in position.

To set the raised position of an implement, push the touch control lever forward until the desired position of the implement is achieved. Loosen the wing screw on the front stop and slide it rearward until it contacts the touch control lever. Tighten the wing screw to lock the stop in position.

NOTE: Some implements can be raised high enough to contact the under side of the tractor. Position the front stop so the implement clears the tractor.

NOTE: Some implements such as the plow cannot be positioned by the touch control lever: See your implement Operator's manual for additional instructions.

When the touch control lift system is not actively used, move the touch control lever all the way back to minimize moisture exposure to the system.



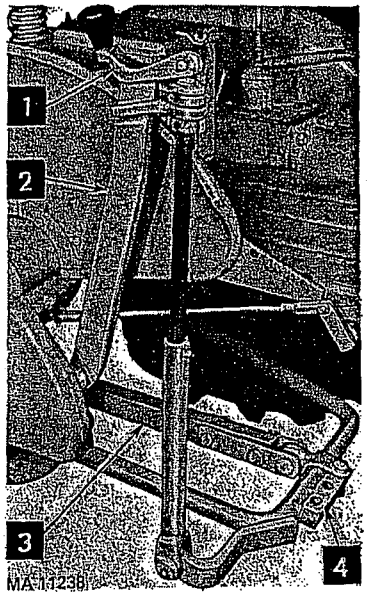
1 - Depth adjusting crank
2 - Lift link swivel
3 - Float lockout pin
4 - Lift link
5 - Hitch bail
6 - Pull bar
7 - Hitch latch
8 - Support assembly
9 - Hitch socket
10 - Stabilizer yoke
11 - Diagonal link
12 - Diagonal link lock bolt
13 - Telescoping link
14 - Limiter pin
15 - Leveling crank
16 - Lift rod swivel
17 - Stop collar
18 - Lift link rod

Touch-control raises and lowers the complete hitch, thus raising the implement to the transport position, or lowering it to the working position.

Before operating with the Fast-Hitch, the front wheels must be equipped with a set of front wheel weights on the tractor to compensate for the weight of the trailing-type equipment and maintain good tractor stability. See your Implement operator's manual.

When using Fast-Hitch with the belt pulley attachment, the belt pulley is to be removed to avoid interference with the diagonal link, and replace it with the pulley spacer. The output shaft with the spacer is to be covered with the power take-off shield to reduce the possibility of entanglement of the operator's clothing.

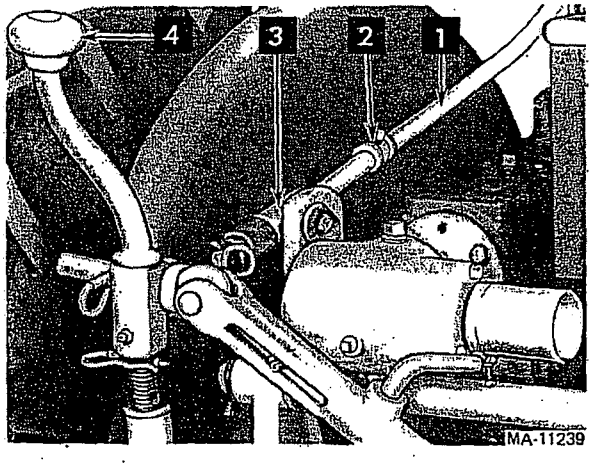
DEPTH ADJUSTING CRANK AND HITCH BAIL



1 - Depth adjusting crank
2 - Depth adjusting screw support
3 - Pull bar
4 - Hitch bail

The depth adjusting crank raises and lowers the bail to control the working depth of plows and various other implements.

LEVELING CRANK AND STOP COLLAR



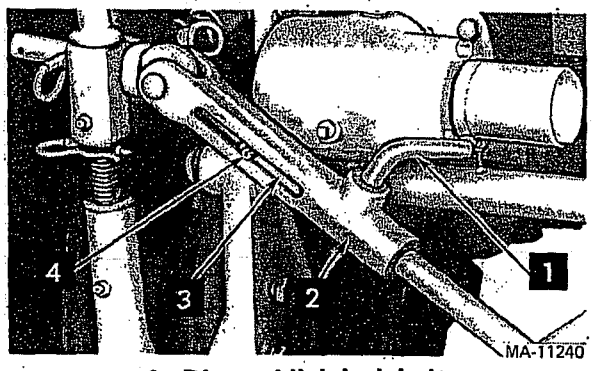
1 - Lift link rod
2 - Stop collar
3 - Lift rod swivel
4 - Leveling crank

The leveling crank is used for side to side leveling of an implement such as a plow when opening up a furrow or when a change in plowing is made.

The stop collar is used to limit the vertical movement of the Fast-Hitch. When plowing, the stop collar should be positioned approximately six inches from the lift rod swivel.

When free vertical movement of the Fast-Hitch is not desired, position and tighten the stop collar against the lift rod swivel.

DIAGONAL LINK

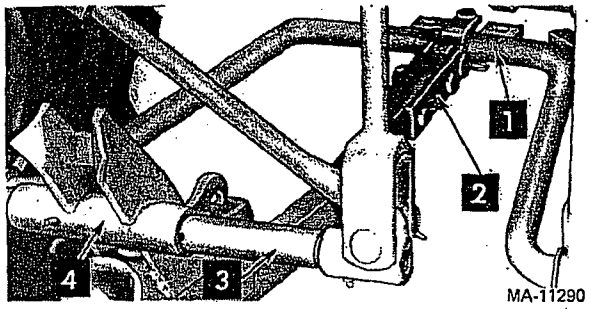


1 - Diagonal link lock bolt
2 - Diagonal link
3 - Telescoping link
4 - Limiter pin

The diagonal link limits the lateral movement of an implement. To allow the implement to swing laterally (side to side) such as a plow, loosen the diagonal link lock bolt five turns so the rod freely moves in and out of the telescoping link.

To hold the hitch laterally rigid (such as when disk harrowing) position the rod so the limiter pin is in line with the arrow on the telescoping link. Then tighten the lock bolt.

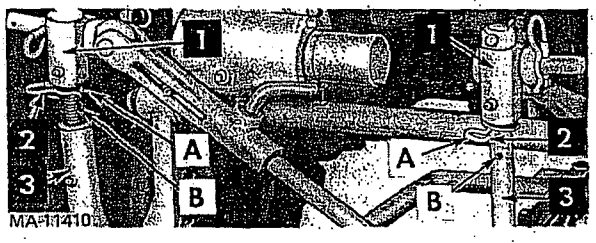
PULL BAR



1 - Hitch bail
2 - Pull bar
3 - Support bar
4 - Pull bar support assembly

The pull bar can be positioned on the center or two positions to the right of center of the tractor. Position the pull bar by connecting the pull bar in one of the three holes in the hitch bail and securing the pull bar support assembly in one of the three holes in the support bar.

LIFT LINKS

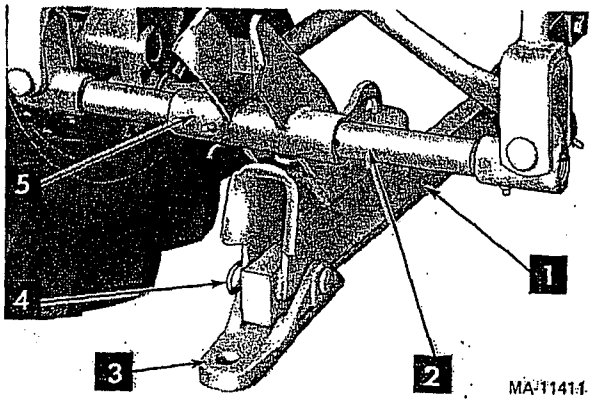


1 - Lift link swivel
2 - Float locket pin
3 - Lift link

The implement can be allowed to rock (float) from side to side to follow the ground contour by installing the float lockout pins in holes "B". This setting allows the lift link to slide up and down in the lift link swivel and is used for wide implements such as the disk harrow.

For applications such as plowing, the float lockout pins should be installed in holes "A" to lock the hitch in a "rigid" position.

PULL BAR EXTENSION



1 - Pull bar
2 - Support bar
3 - Pull bar extension
4 - Quick-attachable cotter pin
5 - Pull bar support assembly

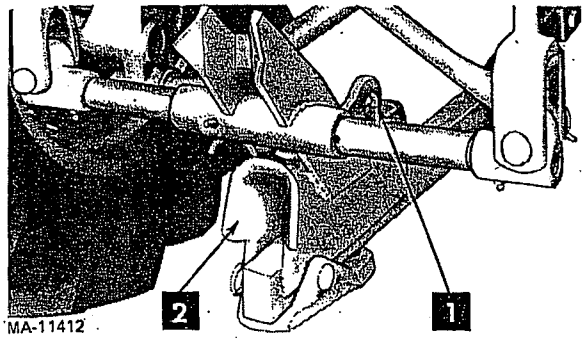
A pull bar extension serves as the drawbar for trailing equipment. When in use, the extension is attached to the pull bar with the hitch hole toward the rear. When not in use, the pull bar extension should be turned with the hitch hole toward the front.

Refer to drawbar section for proper Fast-Hitch adjustments when using the pull bar extension when pulling equipment.

UNCOUPLING THE EQUIPMENT

To uncouple the implement on ground level, lower the implement to the ground, reach back and lift the hitch latch. If the latch is difficult to disengage, back the tractor slightly against the implement to relieve the load on the latch. The latch will remain open until the implement prong is withdrawn.

COUPLING THE EQUIPMENT



1 - Hitch latch
2 - Hitch socket

The equipment and tractor should rest on reasonable lever ground.

Set the control lever as required to locate the hitch socket at the same height as the equipment prong.

Back the tractor until the prong begins to enter the hitch socket, then lower the hitch until the weight of the hitch is resting on the prong; then, with the tractor engine running at approximately one-third open throttle, back the tractor with a sudden motion so the prong is forced into the hitch socket and the hitch latch falls in place.

When difficulty in making the connection is experienced and the prong enters the hitch socket but not far enough for the hitch latch to fall, the equipment may be picked up by the hitch and then set back on the ground. When this is done, the equipment will often rest in a better position for lining up.

The above method of coupling will necessarily be modified for some equipment. Variations, such as a difference in tractor tire sizes or the type of tool equipment used, must be considered.

DRAWBARS

Do not attempt to pull equipment or other objects when the drawbar is removed. Drawbar bolts must be kept tight. All hitches for trailing implements must be attached to the drawbar.

When using a long chain to hitch the tractor to the load, drive the tractor forward slowly until all of the slack is taken out of the chain.

It may be necessary to add front end weight on the tractor to compensate for the weight of the trailing-type equipment and maintain good tractor stability.

CAUTION! Trailing-type equipment must be hitched to the tractor only at the hitch hole in the drawbar. See illustration. Hitching at any other location greatly increases the possibility of flipping the tractor over backward.

Hitch equipment so the center line of pull of the tractor (normally midway between the rear wheels) will fall in line with or near the center line of draft of the trailing equipment. To hitch to one side or the other of the line of draft may cause loss of steering control.

FAST HITCH DRAWBAR

The following instructions must be followed when using the Fast-Hitch as a drawbar:

1. Attach the pull bar extension so the hitch hole is toward the rear.

2. Lock the diagonal link.

3. Lift link float lockout pins are to be in the holes closest to the lift link swivels. A upper Holes.

4. Position lift bar locking collar against swivel.

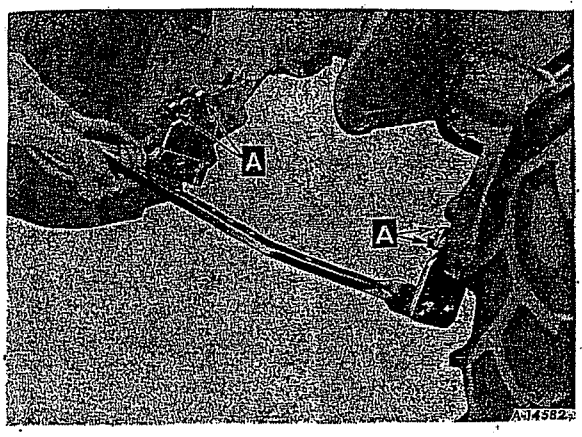
5. Position pull bar midway between rear wheels.

6. Position the pull bar and bail so they are in line with the implement hitch or the line of draft of the towed implement.

REMOVING THE DRAWBAR

To remove the drawbar for mounting other equipment, loosen the bolts from left and right side at "A" in illustration, and unhook the complete drawbar.

The drawbar can be reversed and placed in the forward position when so desired.

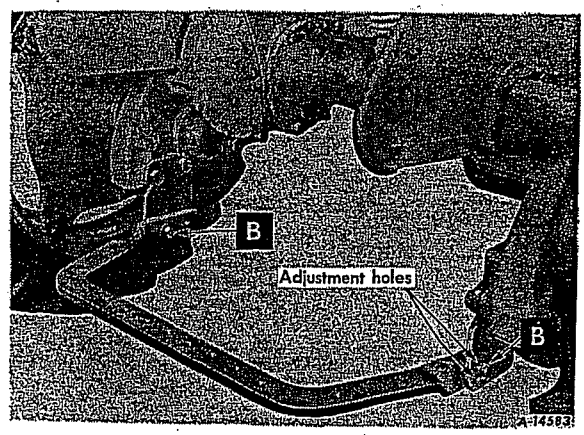


ADJUSTING THE DRAWBAR

The drawbar can be adjusted at three different heights to accomodate different hitch heights of trailed equipment.

Remove the bolts from left and right side of the drawbar bracket at "B" in illustration.

Move the drawbar to the upper hole or lower hole of the drawbar bracket. Replace bolts "B" and tighten securely.

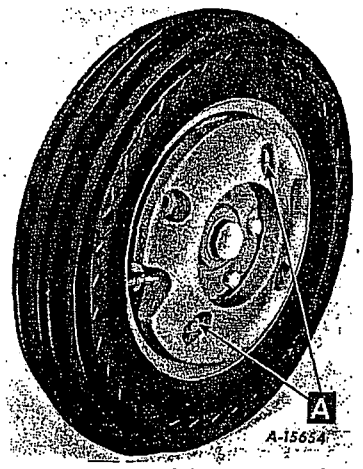


A Careful Operator

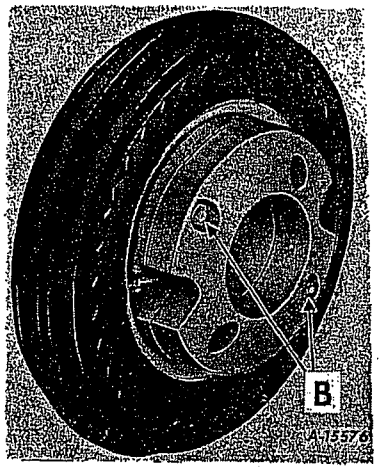
IS THE BEST INSURANCE AGAINST AN ACCIDENT

WEIGHTS

FRONT WHEEL WEIGHTS



First front wheel weight mounted on wheel.

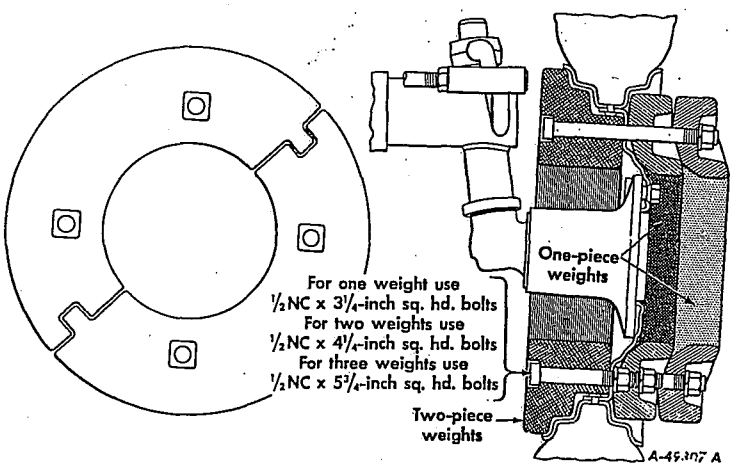


First and second front wheel weights mounted on wheel.

To increase steering control front wheel weights are recommended for use as a front end counterbalance with heavy drawbar loads, or when heavy equipment is to be mounted on the rear of the tractor. The one-piece front wheel weights weigh approximately 26 pounds (11.8 kg) each, and either one or two can be attached to the outside of each front wheel.

The first set of one-piece front wheel weights includes a set of two weights and four 1/2NC x 1-3/4-inch carriage bolts, nuts and lock washers for attaching the weights to the front wheels at **"A" in illustration.**

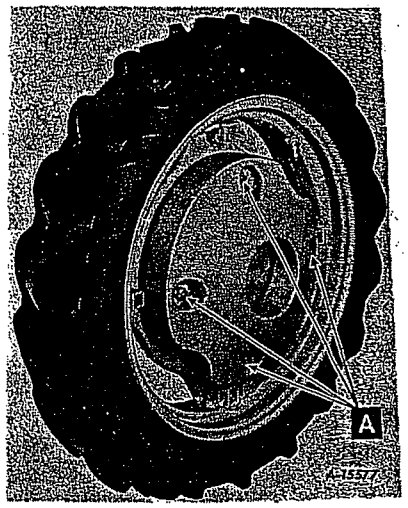
If additional weight is desired a second set of one-piece weights can be attached using four 1/2NC x 3-3/8-inch carriage bolts, nuts and lock washers at **"B" in illustration.**



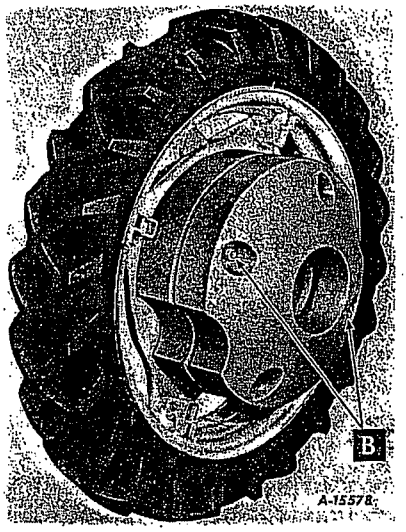
If only one set of two-piece weights is to be attached to each wheel, use eight 1/2NC x 3-1/4-inch bolts, nuts, and lock washers.

To mount a set of one-piece weights on the outside of the front wheels with two-piece weights on the inside, use eight 1/2NC x 4-1/4-inch bolts, nuts, and lock washers.

REAR WHEEL WEIGHTS



First rear wheel weight mounted on wheel.



First and second rear wheel weights mounted on wheel.

The rear wheel weights weigh approximately 150 pounds (68 kg) each and either one or two can be attached to each rear wheel to reduce slippage and tire wear.

The first set of rear wheel weights includes a set of two weights and requires eight 1/2NC x 3-inch bolts, nuts and lock washers for attaching the weights to the rear wheels at **"A" in illustration.**

If additional weight is desired, a second set of weights can be attached to the first weights by using four 1/2NC x 6-1/4-inch bolts, nuts and lock washers at **"B" in illustration.**

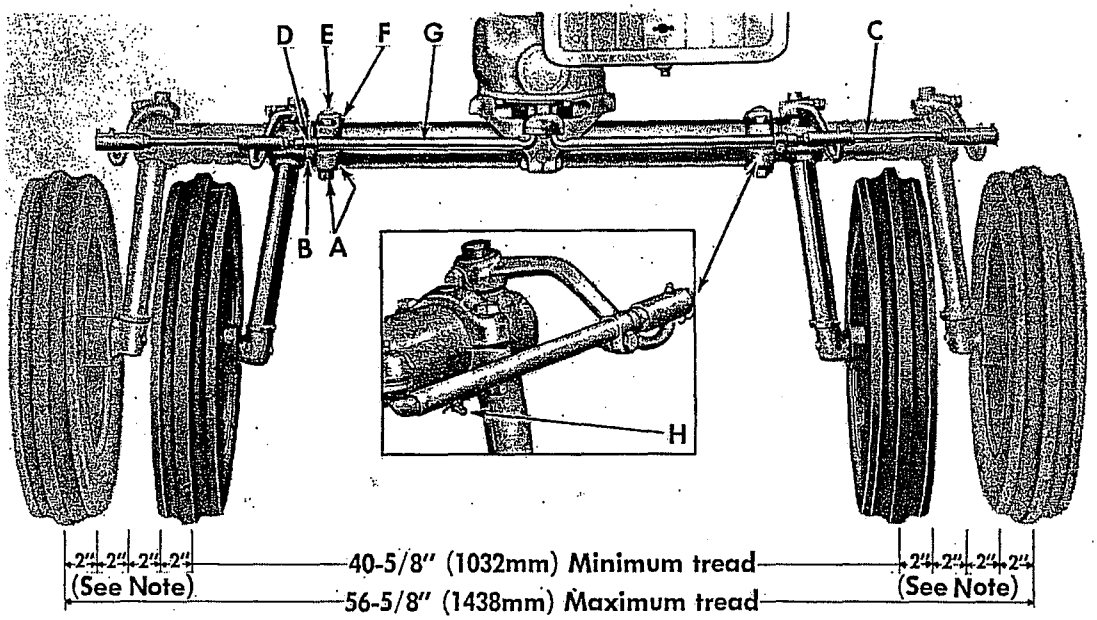
Before attaching the second rear wheel weights, it is necessary to remove two bolts from each first weight and replace them with the longer bolts provided with the second weights.

If the second weights are removed, the two shorter bolts in each first weight previously removed, must be reinstalled.

NOTE: The drawbar pull of a tractor can be increased by adding cast iron weights to the driving wheels, and by the use of liquid in the tires. The amount of the increase in drawbar pull by the addition of certain definite weights varies with the type of soil. When very heavy weight is required, both liquid and cast iron weights can be used.

TREAD WIDTH ADJUSTMENT

FRONT TREAD WIDTH ADJUSTMENT
Adjustable Axle



A - Axle extension clamp bolt
B - Tie rod clamp bolt
C - Tie rod extension
D - Tie rod clamp
E - Axle extension clamp pin
F - Axle extension clamp
G - Tie rod
H - Cotter pin

Front view showing front axle tread widths.

The tread width on tractors equipped with adjustable front axle and rear wheels can be adjusted to suit various crop row spacings.

To adjust the front tread width, proceed as follows:

Jack up the front end of the tractor and securely support the front axle with blocks or sturdy jackstands. Place the blocks or jackstands just inside the axle extension clamps "F".

Loosen bolts "A" holding the axle extension Clamp "F".

Remove bolt "B" from tie rod clamp "D".

Remove cotter pin "H" from extension clamp pin "E".

Remove axle extension clamp pin "E".

CAUTION! Do not remove axle extension clamp pin "E" without securely supporting the front axle. Without pin "E" the axle extension can rotate and allow the front of the tractor to drop to the ground.

Move the axle extension and tie rod end "C" in or out to the desired tread position.

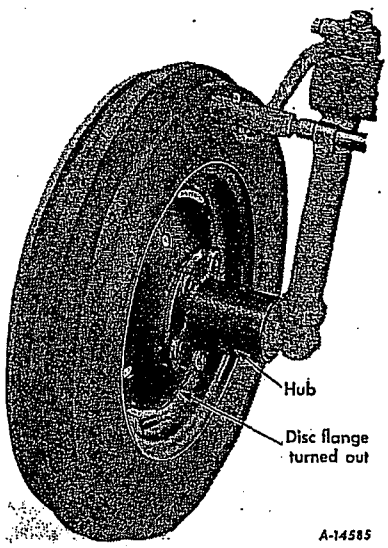
Align the holes in the axle and axle extension and install axle extension clamp pin "E".

Install and spread cotter pin "H".

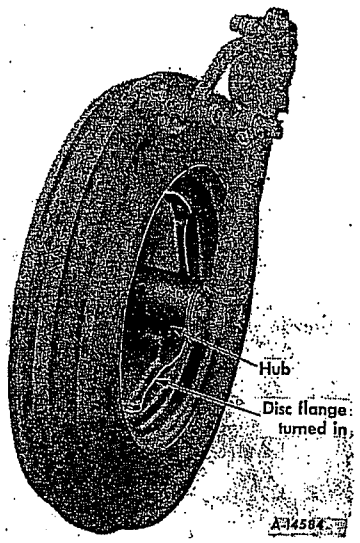
Tighten bolts "A" on extension clamp "F".

Align the notches in the tie rod extension with the hole in the tie rod clamp "D" and install and tighten bolt "B".

Adjustable Front Wheels



Front wheel with disc flange turned out.



Front wheel with disc flange turned in.

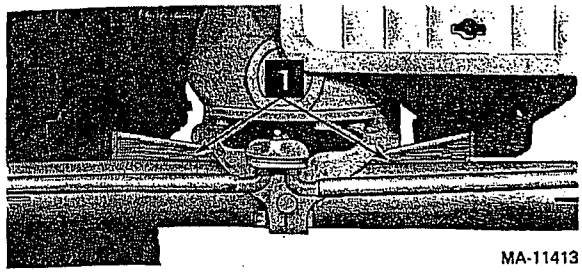
The front wheel disc flange can be turned out to increase the total tread width by 6 inches (15.2 mm).

NOTE: The front wheels must not be mounted with the disc flanges turned out when the tractor is carrying heavy front end weight.

The front wheel disc flange can be turned in to decrease the total tread width by 6 inches (15.2 mm).

INTERNATIONAL HARVESTER

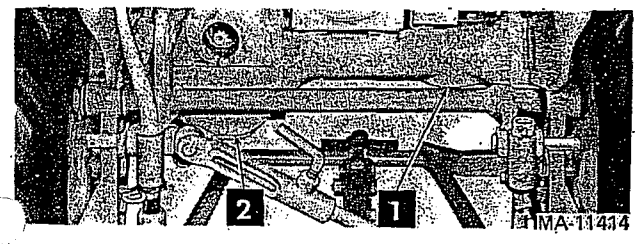
REAR TREAD WIDTH ADJUSTMENT



1 - Wood wedge blocks

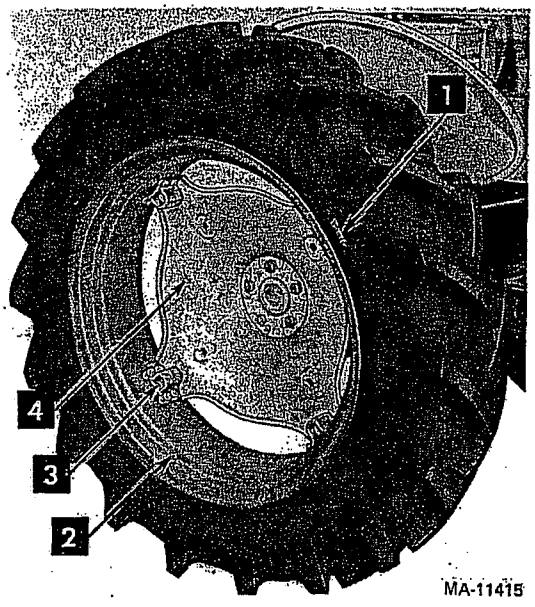
To adjust the rear wheels proceed as follows:

1. Block the front axle securely as shown to prevent the tractor from tipping when demounting the rear wheels.



1 - Axle extension pad
2 - Transmission pad

2. Jack up rear of tractor and securely block or place sturdy jack stands under the tractor at pads under the axle extension and under the transmission.

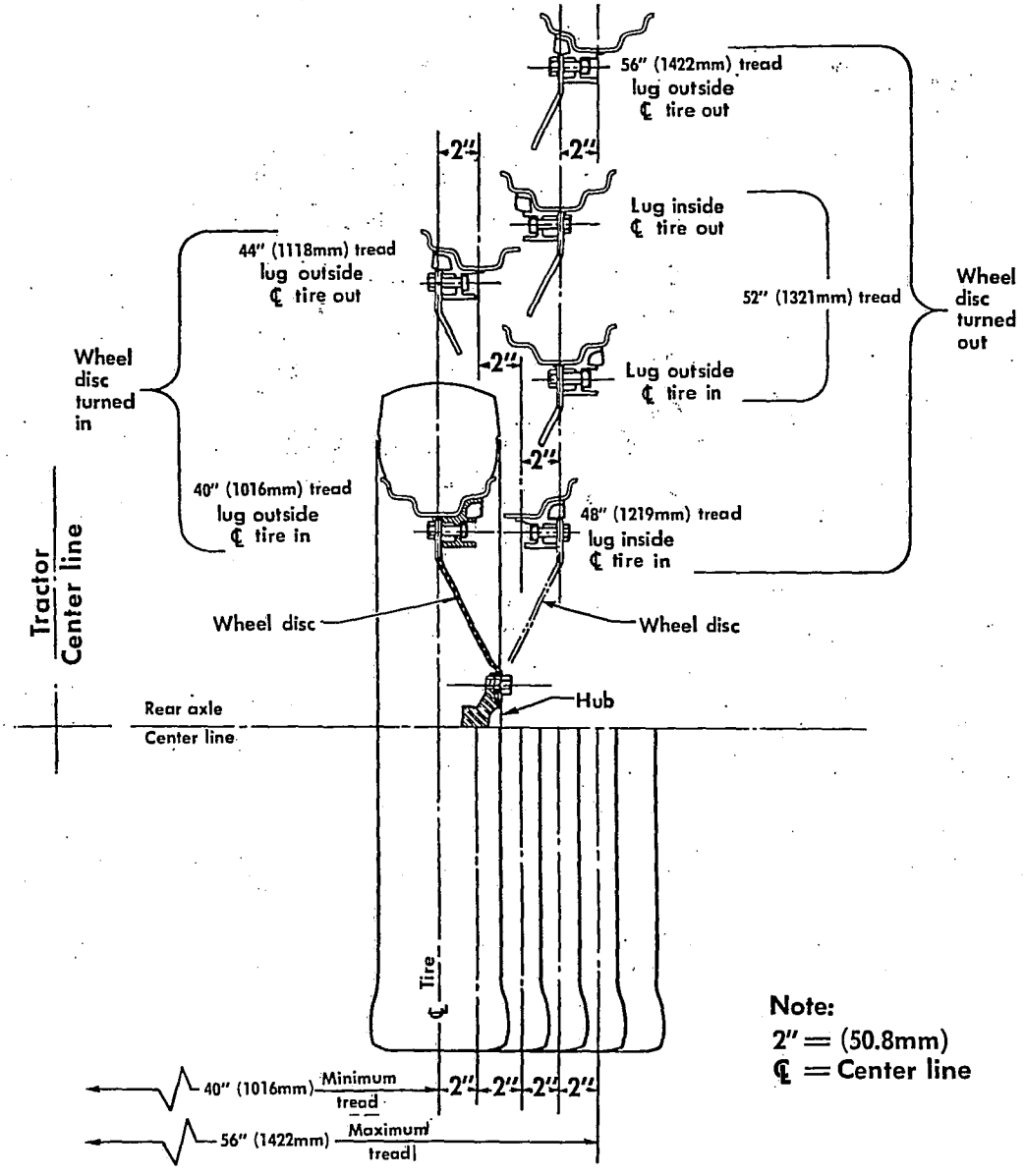


1 - Rotation arrow
2 - Rim
3 - Lug
4 - Disc flange

3. Remove and position the wheel and disc for the desired tread width. See illustration. Tighten all bolts securely and periodically check tightness.

NOTE: The arrow on the side wall of the tire is to point in the direction the tire will rotate with forward motion of the tractor. If the arrow does not point in the correct direction when mounting the tire and rim assembly at the desired tread width, exchange left and right tire and rim assembly.

REAR TREAD WIDTH ADJUSTMENT-Continued



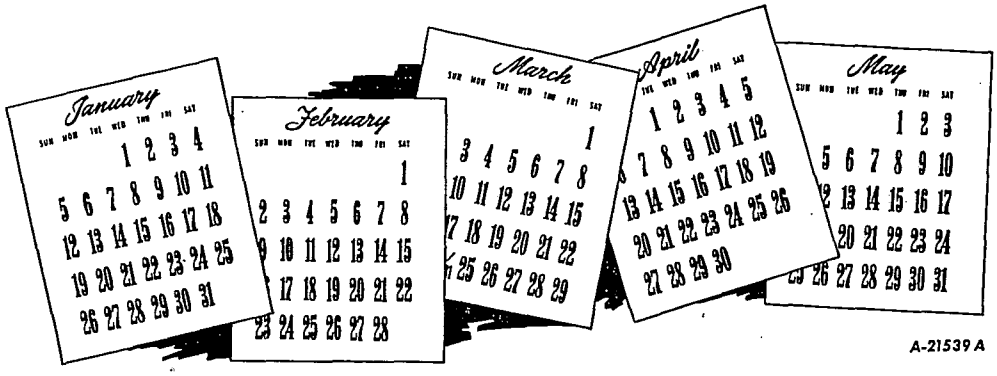
Note:
2" = (50.8mm)
℄ = Center line

Note: 44" (1118mm) is minimum tread width with 9.5-24 tires

MA-11254

Rear wheel tread positions.

PREVENTIVE MAINTENANCE GUIDE



To keep your tractor performing efficiently, it is advisable to systematically inspect the following points at intervals as outlined below.

Before Operating the Tractor

Before operating a new tractor for the first time, be sure to follow the instructions given under "Before Operating Your New Tractor", and "Driving the Tractor". Also see "Lubrication", "Lubrication Table" and "Lubrication Guide".

After the First 10 Hours of Operation

Fan and alternator belt	Check tension. See "Fan, Crank and Alternator Belt Tension".

After Every 10 Hours of Operation

Air cleaner cap	Remove dirt or chaff. See "Washing the Cleaner".
Air cleaner oil cup	Clean and refill oil cup. See "Oil Cup Service".
Cooling system	Check level of coolant in radiator (two inches from top of neck).
Lubrication points	See "Lubrication Guide".

After the First 50 Hours of Operation

Cylinder head bolts	Check and tighten to the proper torque.
Engine valves	Check clearance.*

After Every 50 Hours of Operation

Flexible rubber connection between air cleaner and carburetor or manifold	Inspect for loose fit or leakage. Refer to "Air Cleaning System".
Pneumatic tires	Check pressure. See "Specifications".
Radiator core	Inspect, clean if necessary. See "Radiator Core".
Lubrication points	See "Lubrication Guide".

*See your International Harvester dealer for this service.

PREVENTIVE MAINTENANCE GUIDE

After Every 100 Hours of Operation

Engine crankcase	Drain and change oil.

After Every 150 Hours of Operation

Air cleaner	Disassemble and Clean. See "Washing the Cleaner".
Brake pedals	Check for free movement and equal pressure. See "Brakes".
Clutch pedal	Check for free movement. See "Clutch".
Lubrication points	See "Lubrication Guide".
Engine valves	Check clearance.*

After Every 200 Hours of Operation

Fan belt	Check tension; replace when necessary. See "Fan, Crank and Alternator Belt Tension".
Lubricating oil filter	Replace the filter element. See "Oil Filter".

After Every 250 Hours of Operation

Crankcase breather	Clean and oil. See "Crankcase Breather and Oil Filler Cap".
Fuel strainer and sediment bowl	Take apart and clean. See "Cleaning the Fuel Strainer and Sediment Bowl".
Spark plugs	Remove and clean; check gaps. See "Spark Plugs and Cables".
Wheel hub bolts	Check for tightness. See "Front and Rear Wheels".

After Every 500 Hours of Operation

Engine valves	Check clearance.*
Fan hub	Add oil to proper level. See "Fan Hub Lubrication".
Fuel line screen (at carburetor)	Clean. See "Carburetor".
Lubrication points	See "Lubrication Guide".

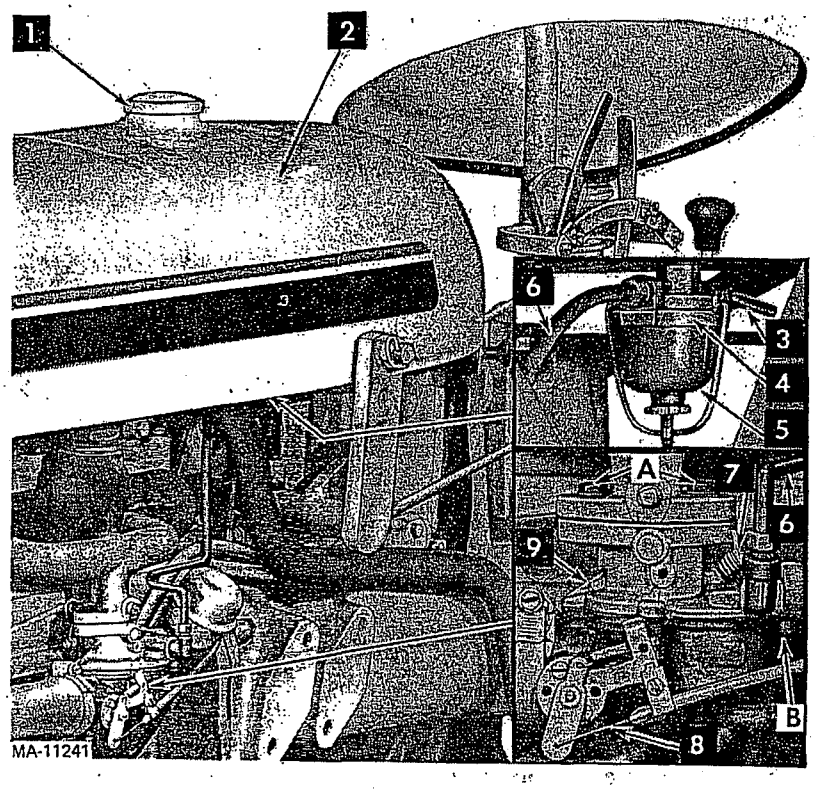
Periodic

Cooling system	Drain, flush, and refill (spring and fall). See "Cooling System".
Distributor cap, breaker points and chamber	Clean chamber and check points. See "Distributor and Coil Unit".
Front Wheels	See "Lubrication Guide".
Storage battery	Check liquid level. See "Battery".
Lubrication points	See "Lubrication Guide".

*See your International Harvester dealer for this service.

PREVENTIVE MAINTENANCE

FUEL SYSTEM



1 - Fuel tank filler cap
2 - Fuel tank
3 - Fuel shut-off valve handle
4 - Fuel strainer
5 - Sediment bowl
6 - Fuel line
7 - Idle adjusting screw
8 - Choke control wire
9 - Carburetor

FUEL SHUT OFF VALVE

To turn the fuel off, turn the handle clockwise until it is tight.

To turn the fuel on, turn the handle counter-clockwise to the stop (5 to 6 turns).

FILLER CAP AIR VENT

The vent should be kept open at all times to relieve vapor pressure and assure proper flow of the fuel.

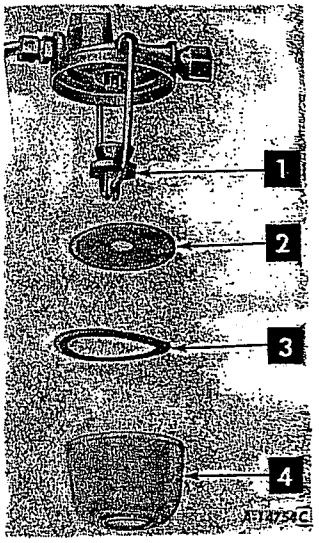
CLEANING THE FUEL STRAINER AND SEDIMENT BOWL

Clean the fuel strainer after every 250 hours of operation. To do this, proceed as follows:

CAUTION! Clean the fuel system only when the engine is cool.

Close the shut-off valve.

Take the strainer apart by loosening the nut under the sediment bowl.



Fuel strainer showing the glass bowl removed for cleaning.

1 - Nut
2 - Screen
3 - Gasket
4 - Bowl

Clean the sediment bowl and clean the screen if necessary.

When reassembling, be sure the cork gasket between the bowl and the main body is in good condition and does not leak. Use a new gasket if necessary.

Open the shut-off valve.

CARBURETOR

Use clean fuel; the presence of dirt and water will cause malfunctioning of the carburetor. Clean the carburetor fuel screen after every 500 hours of operation.

The carburetor fuel inlet screen is attached to the fuel inlet elbow fitting. Remove the fitting, clean the screen, and reinstall.

The flange nuts which hold the carburetor to the manifold should be checked periodically for tightness. **See "A" in illustration.**

Occasionally check cover screws which fasten the fuel bowl to the fuel bowl cover. **See "B" in illustration.** They should be kept tight to avoid any air leakage past the fuel bowl cover gasket.

The engine and carburetor are correctly set when shipped from the factory. If this setting has been disturbed for any reason, proceed as follows:

Adjusting the Idle Adjusting Screw

Close the idle adjusting screw to its seat by turning it to the right (or in); then open it one turn. Start the engine and operate it at fast idling speed (without any load) until thoroughly warm. Cover the radiator if necessary.

While the engine is running at fast idle speed, it is advisable to screw in the throttle stop screw a few turns to prevent the engine from stopping when the throttle is closed. Now close the throttle. The engine will then be idling at a fairly high speed and the throttle stop screw can be backed out a little at a time until the desired idle speed is obtained.

If the engine surges or runs rough while backing out the throttle stop screw, the idle adjusting screw should be adjusted either in or out until the engine operates smoothly. Speed up the engine for a few seconds; then recheck the idle adjustment. A slight adjustment in or out will give the smoothest idle.

COOLING SYSTEM

The tractor cooling system, which operates on the thermo-siphon principle, does not use a thermostat or water pump. As the engine warms up, the coolant is heated, expands, and circulates through the engine block and cylinder head, to the radiator where the coolant temperature is lowered before again circulating through the engine.

The cooling system operates under pressure which is controlled by a regulating valve built into the radiator cap. To maintain pressure in the system be sure all connections are tight, there are no leaks in the system, the radiator cap is in good condition and tightened to the stop, and the radiator gasket surface is clean and smooth. If the radiator cap regulating valve is faulty, replace the cap with a new one of the same type.

RADIATOR CAP REMOVAL

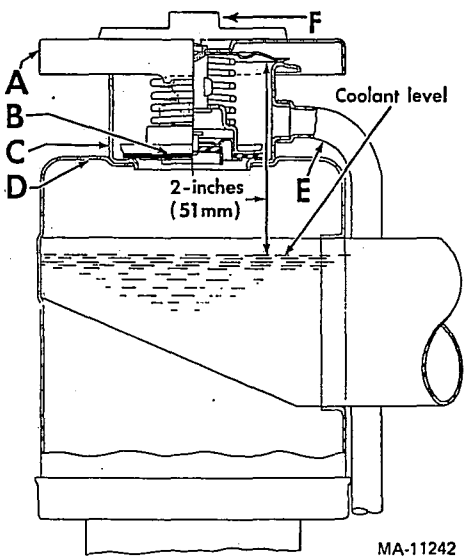
Vent all pressure in the cooling system by turning clockwise the pressure release knob (red) on top of the cap. This will allow vapor to be vented out the overflow tube.

After all pressure has been vented, turn the cap counterclockwise and remove.

Before reinstalling the radiator cap, be sure to remove any chaff or dirt particles which may be on the gasket surface of cap, and tighten the cap clockwise to the stop.

NOTE: Do not use chemical mixtures to stop radiator leaks. Have the radiator repaired.

ADDING COOLANT TO THE COOLING SYSTEM



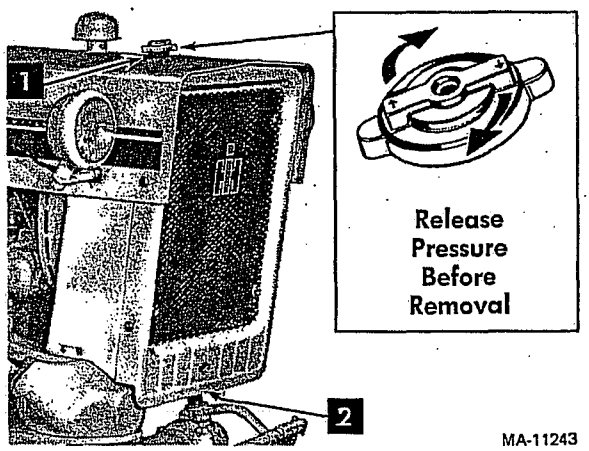
A - Radiator cap
B - Filler cap gasket
C - Filler neck
D - Upper water tank
E - Overflow tube
F - Pressure release knob

Water level in pressure-cooled radiator.

CAUTION! A thermo-siphon system has coolant at the boiling point during normal operation.

Fill the radiator slowly to approximately 2-inches (51 mm) below the top of filler neck. Due to expansion, when the system becomes hot, any excess water will be discharged through the overflow pipe.

DRAINING THE COOLING SYSTEM



1 - Radiator cap
2 - Drain plug

Remove the drain plug and allow the coolant to drain. Removal of the radiator cap may be necessary to completely drain the cooling system.

CLEANING THE COOLING SYSTEM

Once a year the cooling system should be drained, thoroughly flushed and cleaned with IH cooling system cleaner.

IH Cooling System Cleaner dissolves rust, scale, and sludge and retards future corrosion when used according to the directions on the container.

FILLING THE COOLING SYSTEM

After the cooling system has been cleaned, install the drain plug and fill the radiator to a level 2" below the top of the filler neck. Use antifreeze protection year around, since it provides rust protection. Coolant should be changed annually to prevent loss of rust and anti-foam protection due to depletion of the antifreeze additives. For temperatures below freezing, use IH antifreeze according to the directions on the container for protection at the lowest expected temperature. Refer to **"COLD WEATHER PRECAUTIONS"**. For cooling system capacity refer to **"SPECIFICATIONS"**.

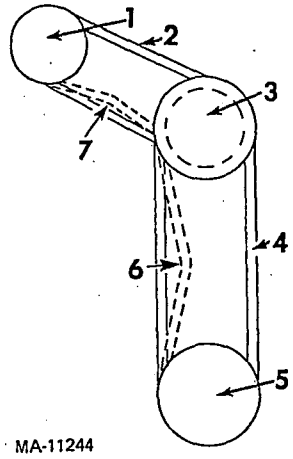
NOTE: When filling the cooling system with water or an antifreeze solution, use distilled or softened tap water whenever practical to reduce the formation of mineral deposits in the cooling system. Never fill the cooling system with water only or antifreeze only as either can be harmful to the cooling system.

CARE OF THE RADIATOR

To clean the radiator core remove the grille screen and gently brush the accumulated material from the face of the core. If the spaces between the radiator fins become clogged, clean them with forced air or water.

FAN, CRANK AND ALTERNATOR BELT TENSION

Belts on new tractors (also new replacement belts) lose their tension as they "seat" themselves in the pulleys. New belts should be checked after the first 10 hours of engine operation and every 200 hours of engine operation thereafter to maintain the correct tension.



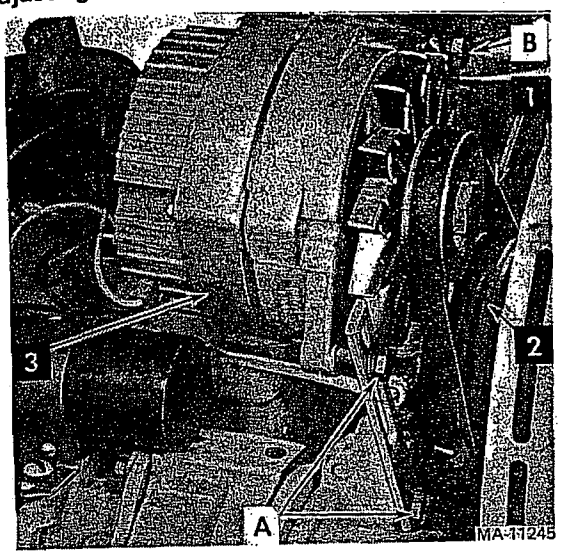
MA-11244

1 - Alternator
2 - Alternator belt
3 - Fan pulley
4 - Fan belt
5 - Crankshaft pulley
6 - Allow 1/4 to 1/2 inch (6mm to 13mm) slack between pulley centers
7 - Allow 3/4 to 1 inch (19mm to 25mm) slack between pulley centers.

The tension is correct when the belt defelctions with very small effort is 1/4 to 1/2 inch (6mm to 13mm) between fan and alternator pulley centers; and 3/4 to 1 inch (19mm to 25mm) between fan and crank pulley centers. See illustration.

NOTE: Over tightening the fan belt and alternator belt may cause early failure of the fan spindle bearings.

Adjusting the Belt Tension



1 - Alternator belt
2 - Fan pulley
3 - Alternator

Loosen the alternator brace bolts "A" and the mounting bolt "B". Loosen the fan spindle at hexagon area "C" on the fan spindle.

First adjust the tension on the fan belt by raising or lowering the fan spindle in the slot in the crankcase front cover until the proper tension is achieved. Tighten the fan spindle.

Second, adjust the tension on the alternator belt by lifting on the alternator until the proper tension is achieved.

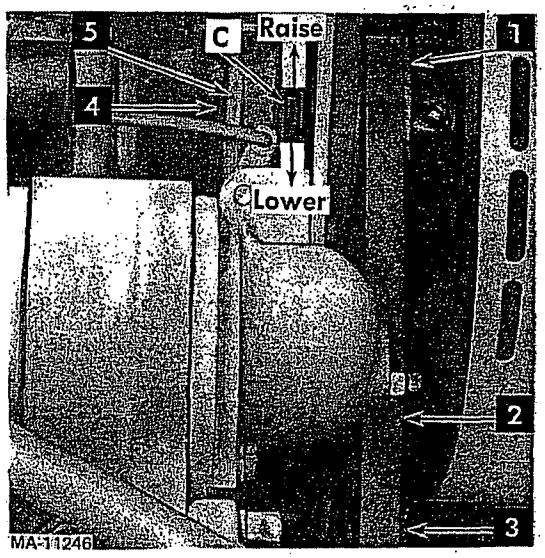
NOTE: Do not overtighten and do not use a pry bar.

Removing and Replacing the Belt

Replace the belts if they become soaked with grease, or when they are so badly worn that the belts do not drive the fan and alternator.

To remove the old belts, loosen the alternator and fan spindle. Thread the belts over the fan blades to remove them.

To install the new belts, first thread the alternator belt over the fan, then thread the fan belt over the ban. Place the fan belt in the fan and crankshaft pulley and adjust for proper tension. Then place the alternator belt in the fan and alternator pulley and adjust for proper tension.



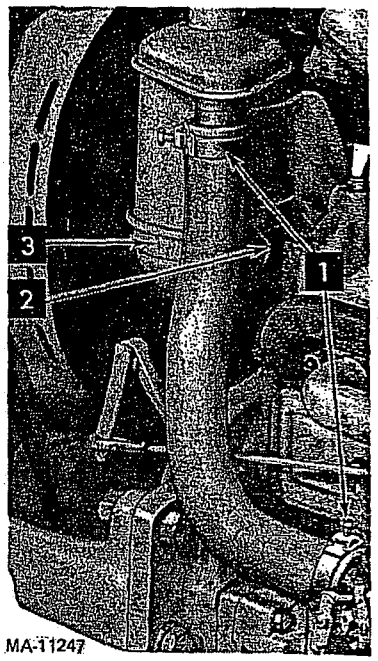
1 - Fan pulley
2 - Fan belt
3 - Crankshaft pulley
4 - Fan spindle
5 - Crankcase front cover
C - Hexagon area on the fan spindle

OIL CUP SERVICE

Clean and refill the oil cup every day, or every 10 hours of operation (more frequently when operating under dusty conditions). Refill the oil cup to the oil level bead with the same grade of oil used in the engine crankcase. **Refer to "LUBRICATION TABLE"** for the oil cup capacity.

Do not remove the oil cup while the engine is operating. Before reinstalling the oil cup, clean or wipe oil or dirt from the top bead of the oil cup.

OIL BATH AIR CLEANER



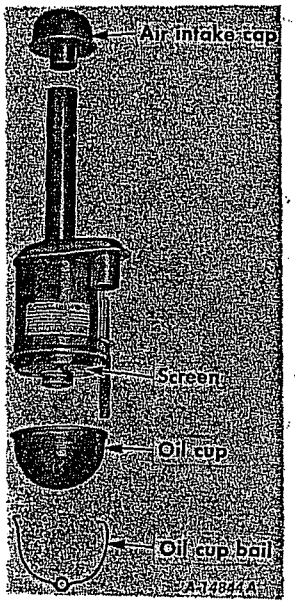
1 - Hose clamps
2 - Oil cup bail
3 - Oil cup

Filtered air is required for proper operation of the engine and to reduce the possibility of engine damage.

Clean air for combustion is assured by an oil-type air cleaner. A heavy screen in the air intake cap prevents large particles from entering the air cleaner. The air then passes to the oil cup where it goes through a bath of oil. As the air rises to the intake manifold, it passes through a series of oil-bathed screens and the fine dust is removed. As the oil from the screen works back down, it carries the dirt with it and settles in the oil cup.

NOTE: Never allow dirt to build up in the cup more than 1/2-inch deep.

AIR CLEANING SYSTEM



The screen in the air intake cap prevents chaff and dirt from getting into the air cleaner. Keep this screen clean as clogged holes in the screen will reduce the power of the engine by restricting the flow of air.

WASHING THE CLEANER

After every 150 hours of operation – particularly if operating the tractor in an atmosphere heavy with dust, chaff or lint—remove the entire air cleaner from the tractor, disassemble it and wash the parts thoroughly in kerosene. Be sure to clean out the air intake pipe.

After all parts have been thoroughly cleaned, reinstall the air cleaner body on the tractor. Make sure all joints are airtight. Reinstall air intake cap.

Refill the oil cup to the level bead with the same grade of oil used in the engine crankcase, and reinstall it on the air cleaner. Be sure it is held securely in place by the oil cup bail or clamp.

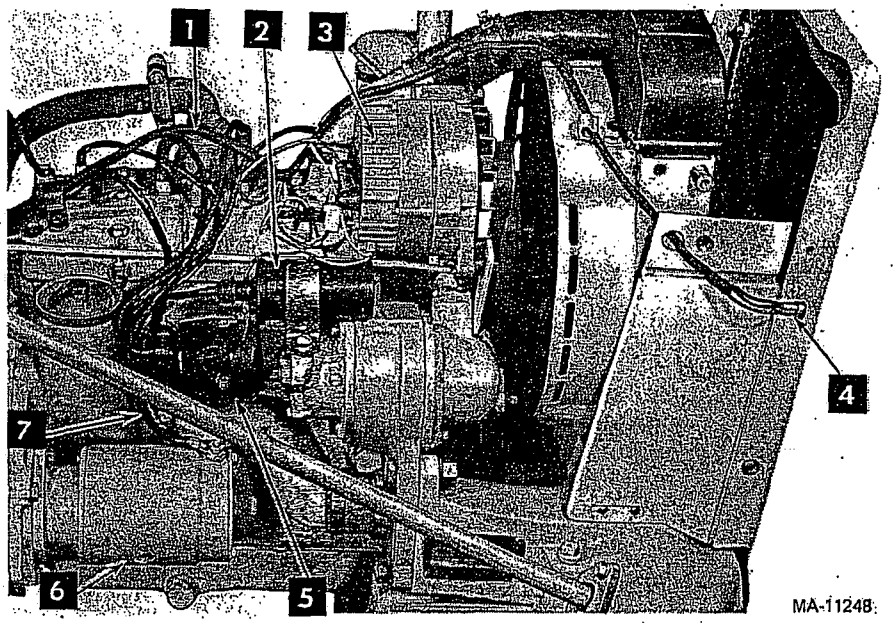
GENERAL PRECAUTIONS

As an added precaution against dirt entering the engine, frequently inspect the flexible rubber hose connections between the carburetor and the air cleaner. If they show any sign of deterioration, replace them. To eliminate strain on the rubber hose connections, be sure the pipes line up. All joints between the air cleaner, carburetor, manifold and cylinders of the engine should be tight. All gaskets must be in good condition and the bolts should be drawn up tight.

CRANKCASE BREATHER SERVICE

The crankcase breather and oil filler cap has an oiled aluminum crimp filler which acts as a dust filter for crankcase ventilation. Clean in solvent and reoil this breather each time the engine oil is changed.

ELECTRICAL SYSTEM



Electrical units and cables on right side of engine.

1 - Cable harness
2 - Ignition coil
3 - Alternator
4 - Headlight cable
5 - Distributor
6 - Cranking motor
7 - Battery to cranking motor cable

CAUTION! Before working on any part of the electrical system, disconnect the battery ground strap from the battery terminal. Do not reconnect it until all electrical work has been completed. This will prevent shorting and causing damage to any of the electrical units.

The tractor electrical system is a 12-volt negative ground system.

IGNITION SYSTEM

The ignition system consists of distributor ignition coil, high tension cables, coil secondary cables, spark plugs, cable harness, and the battery.

The distributor, ignition coil, and high tension cables are located on the right side of the engine.

In order to assure satisfactory operation of the ignition system, a periodic check should be made as follows:

Ignition Coil

Keep ignition coil terminals clean and tight and clamp the mounting bolts tight to assure good ground return. The secondary cable must be fully engaged in tower and insulating nipple in place.

The ignition coil does not require special service other than to keep all terminals and connections clean and tight.

Distributor

Blow off the distributor cap before removing, to prevent dust and dirt from falling on the breaker cover and into the breaker chamber. Before installing new breaker contact set, wipe the cam lobes clean. Use high temperature cam lubricant furnished with the contact set and follow the instructions provided. Adjust the breaker point opening, using a .020-inch (.51 mm) feeler gauge.

Distributor Cap, Rotor, and Dust Cover

Be sure the rotor, dust cover, and the inside of the distributor cap are clean, and free of dust, moisture, or oil film. If necessary, wipe clean and dry. The felt seal must be in place around the distributor shaft on the breaker cover.

Spark Plugs and Cables

Remove all dirt from base of spark plug before removing from engine. Remove the spark plugs after every 250 hours of operation for cleaning and checking the gaps between electrodes. A gap of .025-inch (.64 mm) should be maintained. When making this adjustment, always bend the ground electrode.

Sandblasting is the recommended method of cleaning spark plugs. Never scrape or clean the insulator with anything which will scratch the porcelain. Scratched porcelain allows carbon and dirt to accumulate much faster.

Always use a spark plug wrench when removing or replacing plugs. This helps to prevent cracking the porcelain. Tighten the spark plugs to 34 foot-pounds (46 newton-metres) torque. If a torque wrench is not available, tighten the plug 1/2 to 3/4 turns past finger tight.

See your International Harvester dealer for various makes of replacement plugs for normal or special service. These plugs have been tested and recommended as best suited for this engine.

If the spark plug cables are removed for any reason, reconnect cables using firing order 1-3-4-2 with No. 1 cylinder at radiator end.

After installing and adjusting new breaker contact set, it is necessary to recheck ignition timing, using a power timing light, for satisfactory engine performance. **Refer to "Specifications"** for ignition timing.

If a power timing light is not available, see your International Harvester dealer for this service.

CHARGING SYSTEM FOR ALTERNATOR

The charging system consists of a alternator, charge indicator, cable harness leads and a resistance unit located in back of the alternator.

In order to assure satisfactory operation of the charging system, a periodic check should be made as follows:

Keep proper belt tension. Mounting bolts must be tight.

To prevent possible damage to the system, avoid the following:

Do not polarize the alternator.

Do not short-out or ground across the terminals of the alternator.

Do not operate the charging system with the output cable disconnected.

CRANKING MOTOR SYSTEM

The cranking system consists of the cranking motor on the clutch housing, key ignition switch, safety starting switch, battery cables and the battery.

NOTE: A battery that is in a low state of charge or with high resistance connections will cause the motor to operate at a lower speed and will affect starting of the engine.

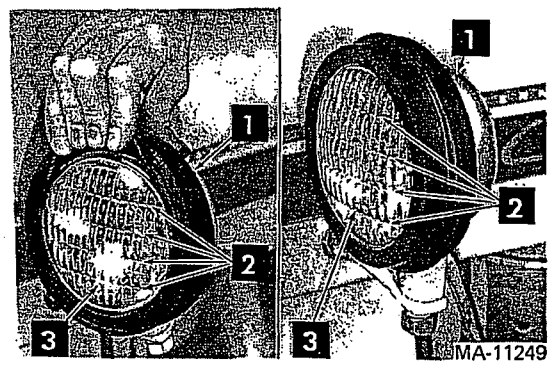
When tractor is to be operated in cold temperature conditions, be sure to follow the procedures as outlined under **"COLD WEATHER PRECAUTIONS".**

LIGHTING SYSTEM

The lighting system includes headlights, combination rear light and taillight, lighting switch, fuse, harness leads and the battery.

HEADLIGHT REMOVAL

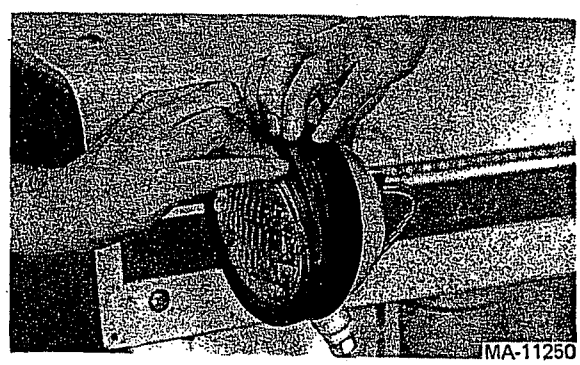
The sealed-beam headlights are especially developed for tractor operations. The parts are so constructed that the filament, reflector, lens, and gasket are all assembled in a unit permanently sealed against dirt, moisture, and corrosion. If a filament burns out or a lens breaks, the complete sealed beam unit must be replaced. See your International Harvester dealer. **Refer to "SPECIFICATIONS".**



Type 1 **Type 2**

1 - Rubber retaining ring
2 - Prism bars
3 - Sealed beam unit

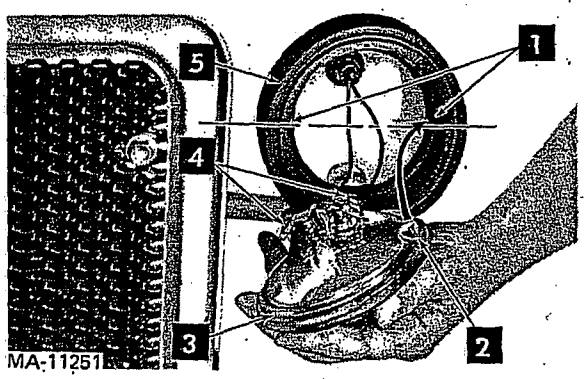
The sealed beam unit is held in position by a rubber retaining ring. To remove a unit, pull a portion of the lip of the rubber ring away from the edge of the sealed beam unit. Then grip the exposed edge of the sealed beam unit and work the rest of the lip away.



NOTE: Type 1 headlight may be removed in the same manner as the combination rear light.

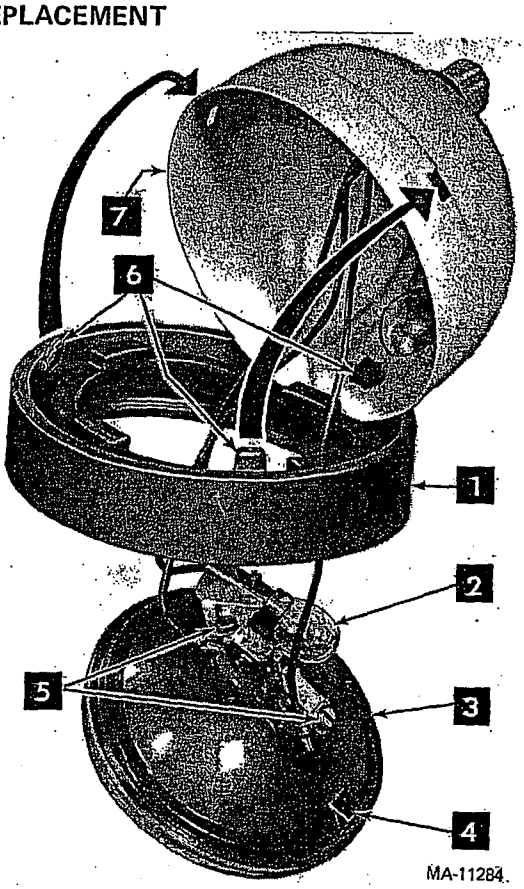
CAUTION! Do not use any tool such as a screwdriver to pry the sealed beam unit loose. Damage to the unit may cause it to shatter resulting in server lacerations.

Disconnect the wires from the terminals at the back of the unit and connect them to the terminals on the replacement unit. Install the replacement unit in the rubber ring. The lug cast onto the glass at the back of the sealed beam unit must fit into the notch in the rubber ring for proper installation. The sealed beam unit is properly oriented when the prism bars in the lens appear as shown and when any lettering on the lens appears in an upright position.



1 - Rubber retaining ring notches
2 - Sealed beam unit lug
3 - Sealed beam unit
4 - Terminals
5 - Rubber retaining ring

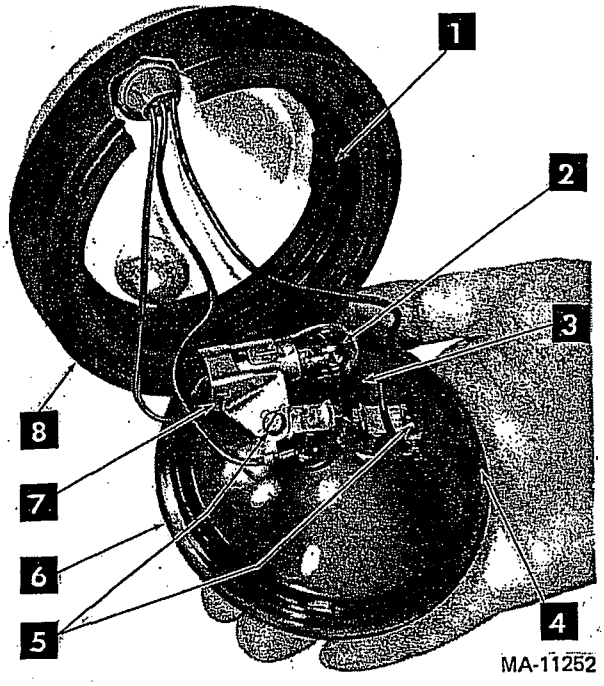
COMBINATION REAR LIGHT AND TAILLIGHT REPLACEMENT



1 - Rubber retaining ring
2 - Red rear taillight lamp
3 - Sealed beam unit
4 - Sealed beam unit lug
5 - Terminals
6 - Rubber lock tabs
7 - Housing

To remove the sealed beam unit, pull the three rubber lock tabs on the rubber ring from the slots in the housing.

Remove the rubber ring and sealed beam unit from the housing and pull the rubber ring from the sealed beam unit.



MA-11252

1 - Rubber retaining ring notches
2 - Red rear taillight lamp
3 - Unsilvered area of sealed beam unit
4 - Sealed beam unit lug
5 - Terminals
6 - Sealed beam unit
7 - Red taillight base
8 - Rubber retaining ring

Attach the red taillight base to the sealed beam unit terminal, so the taillight lamp is over the unsilvered area of the sealed beam unit.

Attach the ground wire (center wire of housing connector) to the same sealed beam unit terminal as the red taillight base. Attach the remaining wire to the second sealed beam unit terminal and tighten all connections.

Align the rubber ring to the housing, so the notches in the ring are horizontal and the three lock tabs align with the three slots in the housing.

Install the replacement sealed beam unit in the rubber ring so the lug on the sealed beam unit aligns with the notch in the rubber ring. Note that the prism bars will be horizontal and any printing on the lens is upright when the rubber ring and sealed beam unit are attached to the housing. Assemble the rubber ring to the housing and push the lock tabs into the housing slots.

To replace the red taillight remove the sealed beam unit to expose the red taillight lamp. Replace the lamp and reassemble the sealed beam unit to the housing.

NOTE: Combination rear light may be replaced in same manner as headlight.

FUSE

A cartridge-type AGC-10 fuse is located in the fuse housing. If a short circuit occurs in the lighting circuit, the fuse will burn out and break the circuit, preventing damage to the electrical system.

It is important to use the same capacity fuse for replacement. If the lights fail, check the fuse. If the fuse continually burns out, check the electrical wiring for short circuits.

To install a new fuse, unscrew the fuse holder on the instrument panel, pull out the old fuse and replace it with a new one.

BATTERY

Major Items of Battery Care

Keep ground strap tight and free of paint and dirt.

To prevent corrosion, coat terminals with lubricant.

To prevent hard starting, keep terminals tight.

Keep battery filled to indicator level.

Cleaning and Servicing the Battery

CAUTION! Always remove the ground strap first and reconnect it last when servicing the battery. This prevents accidental shorting of the battery to the frame with the tool used to remove or install the terminal. Shorting can cause the battery to explode.

To service the battery, loosen the wing nuts on the battery hold-down bolts, and remove the cover.

Occasionally remove the battery cable ground strap. Brighten the terminal and cable contacting surfaces with wire wool. Reassemble and surround the post and clamp with a light coat of vaseline or chassis lubricant. Be sure the cable terminals are clamped tightly on the battery posts and that the battery is fastened securely to the battery support. To prevent battery damage, keep the cover tight. Replace damaged cables. Keep the vent holes in the battery filler caps open.

When replacing a battery, make certain that the ground strap is connected to the negative (–) terminal on the battery.

Liquid Level

For long battery life and trouble free operation check the battery at 15 day intervals for water level. If the battery is in need of charging, it should be given immediate attention. Keeping the battery fully charged not only adds to its life but makes it available for instant-use when needed.

The electrolyte (acid and water) in each cell should be at the proper level at all times to prevent battery failure. When the electrolyte is below this level, pure, distilled water should be added. Do not add any special battery "dopes", solutions, or powders.

For dependable battery service, see your International Harvester dealer.

CAUTION! Electric storage batteries give off highly inflammable hydrogen gas when charging and continue to do so for some time after receiving a steady charge. Do not under any circumstances allow an electric spark or an open flame near the battery, since it may cause the battery to explode.

Cold Weather Operations

It is especially important to keep the battery close to full charge for cold weather operation. Add water to the battery in freezing temperatures only when the tractor is to operate for several hours, to thoroughly mix the water and electrolyte, or damage to the battery will result from the water freezing.

A battery three-fourths charged is in no danger from freezing. Therefore keep the battery better than three-fourths charged, especially during winter weather.

If your tractor is not to be operated for some time during the winter months, it is advisable to remove the battery and store it in a cool, dry place above freezing temperature of +32°F. (+0°C.). Place the battery on a rack or bench.

Connecting Booster Battery

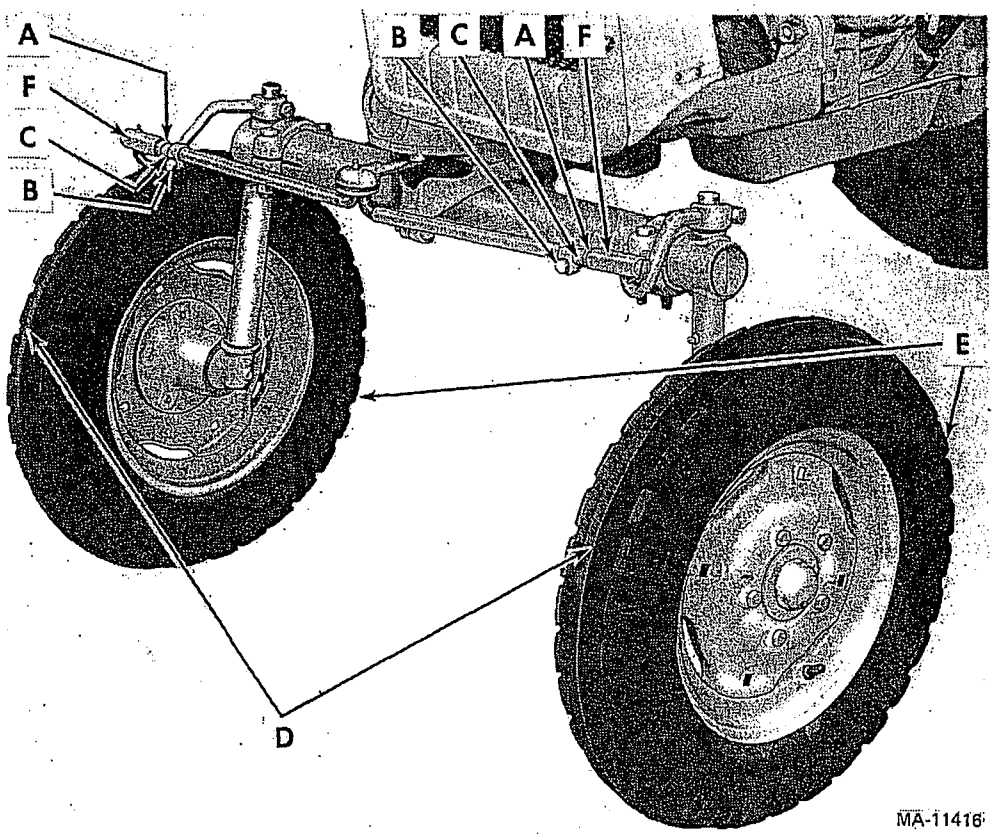
When required, a booster 12-volt battery may be connected in parallel with the 12-volt system on the tractor.

NOTE: All circuits must be turned "off". Electrical System is NEGATIVE (–) grounded only. Reversed polarity will result in permanent damage to components of the electrical system.

NOTE: The positive terminal of the booster battery must be connected to the positive terminal of the tractor battery. The negative terminal of the booster battery should be connected to a point on the frame having a good ground, away from the battery, so no sparks occur near the battery.

NOTE: Connecting jumper cable to sources other than a good ground can result in serious damage to the tractor.

ADJUSTING THE TOE-IN



The front wheels should have 1/4-inch (6 mm) toe-in (1/4-inch (6 mm) closer in front than in the rear). To check the toe-in, place chalk marks at point "D" on each tire at hub height. **See illustration.** Measure the distance between them. Move the tractor rearward a distance equal to one half reveolution of the front wheels. The chalk marks should now be at point "E". The measurements between points "E" should be 1/4-inch (6 mm) greater than at "D".

To adjust the "toe-in", loosen the lock nuts "A", and turn tie rod extension "C" in or out as required.

Be sure to make the left and right tie rod adjustments equal.

Reinstall bolts "B" and tighten lock nut "A".

TIRES

Observe the following instructions and recommendations for maximum life and efficient service from the pneumatic tires.

CARE OF TIRES

Avoid stumps, stones, deep ruts, and other hazards. Cuts in tires should be repaired immediately, as neglect decreases tire life. Keep the tires free from oil and grease, as both destroy rubber. After using the tractor for spraying chemicals use water to remove any chemicals that may be on the tires.

INFLATION

Upon receiving your tractor, immediately adjust the air pressure in the tires as indicated in "SPECIFICATIONS".

Keep the pneumatic tires properly inflated. Underinflation will damage the tire cord body and may cause the tire to slip on the rim and tear out the tube valve stem. Overinflation results in excessive slippage, causing rapid tire wear.

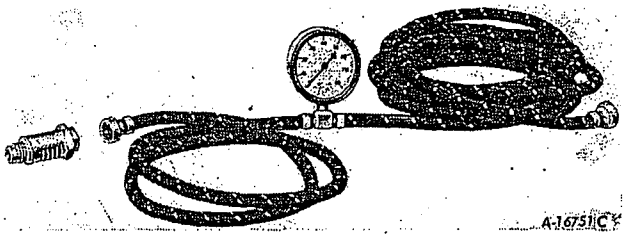
Check the air pressure once a week with an accurate low-pressure gauge having one-pound graduations.

Always see that the tire valve caps are in place and are screwed tightly. The caps prevent the loss of air through the valve core, and keep loose soil, mud, gravel, snow, and ice from entering and damaging the valve core.

Tires can be inflated with a pressure pump, hand pump, or a spark plug pump. Spark plug pumps can be purchased from International Harvester dealers.

USING THE SPARK PLUG TIRE PUMP

Remove one of the spark plugs from the tractor engine and replace it with pumping element having the correct spark plug thread size. Attach one end of the pump hose to the pumping element, and other end to the valve stem of the tire to be inflated.



Tire pump, hose and air gauge.

Start the engine and run it at low speed for maximum efficiency.

NOTE: Do not use a diesel engine as the source of power.

SHIPPING TRACTORS EQUIPPED WITH PNEUMATIC TIRES

When tractors are transported on a carrier, such as a railroad car or trailer, inflate front and rear tires to 30 psi (207 kPa). The higher pressure must be reduced to operating pressure BEFORE the tractor is removed from the carrier. See "SPECIFICATIONS".

When equipment is mounted on the tractor, the rear wheel tire loads may be increased up to 20 percent with no increase in inflation as indicated in "SPECIFICATIONS" and speeds do not exceed 10 miles per hour (16.1 kilometres per hour).

MOUNTING TIRES ON THE RIM

After mounting a new or old tire on the rim, inflate it to thirty pounds pressure to seat the tire bead on the rim flange and to keep the tire from creeping and shearing off the valve. Then deflate or inflate the tire to the correct operating pressure.

TRACTION AND WEIGHTS

The tractor should not be operated with the tires improperly inflated. To insure the maximum hours of service, watch the tread lugs; if they wear down too fast, immediately add more weight to cut down slippage. Check for high air pressure. Consult your International Harvester dealer for information.

TIRE CHAINS

In wet grass or ground conditions, use lug-type chains. The flexing of the tire and the creeping of chains will break the mud loose as the wheel rotates. **NOTE:** There is a possibility of the tire slipping within the chain; to prevent this, the use of spring-type chain fasteners is recommended.

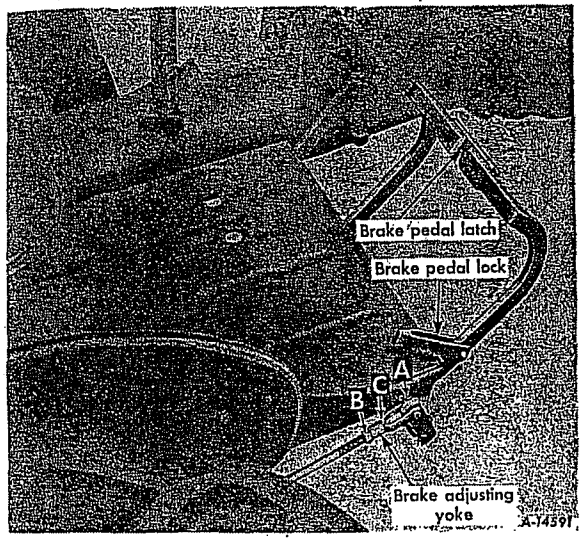
OVERLOADING

Do not overload the tractor tires by mounting implements on the tractor which exceed the load capacity of the size of the tires on the tractor.

BRAKES

Check the brakes for free movement and equal pressure after every 150 hours of operation until the proper interval is determined according to usage.

BRAKE ADJUSTMENT



To adjust the brakes, jack up the rear end of the tractor. Remove pin "A" and loosen lock until each wheel drags slightly when turned. Reinstall pin "A" and tighten lock nut "B" after the adjustment has been completed.

CLUTCH

As a result of normal clutch facing wear, the free travel between the clutch release levers and the release bearing is reduced. Lack of clearance causes excess slipping, overheating, and early replacement of the clutch facing.

Check the clutch for free movement after every 150 hours of operation until the proper inspection interval is determined according to usage. Check the free movement thereafter, as required, to provide proper clearance between the clutch release bearing and the clutch release levers.

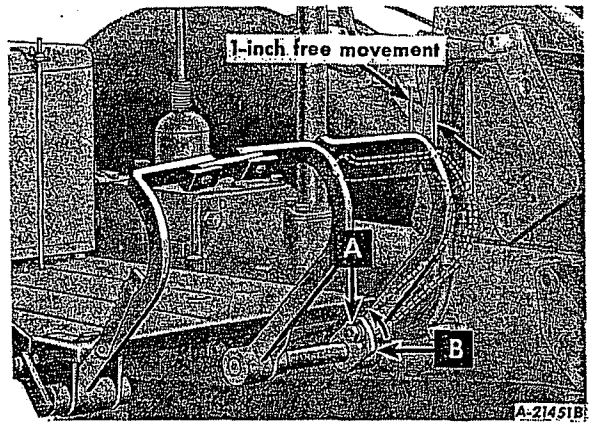
CARE OF THE ENGINE CLUTCH

The clutch release shaft and bearing should be lubricated at proper intervals as instructed in the **"LUBRICATION GUIDE".**

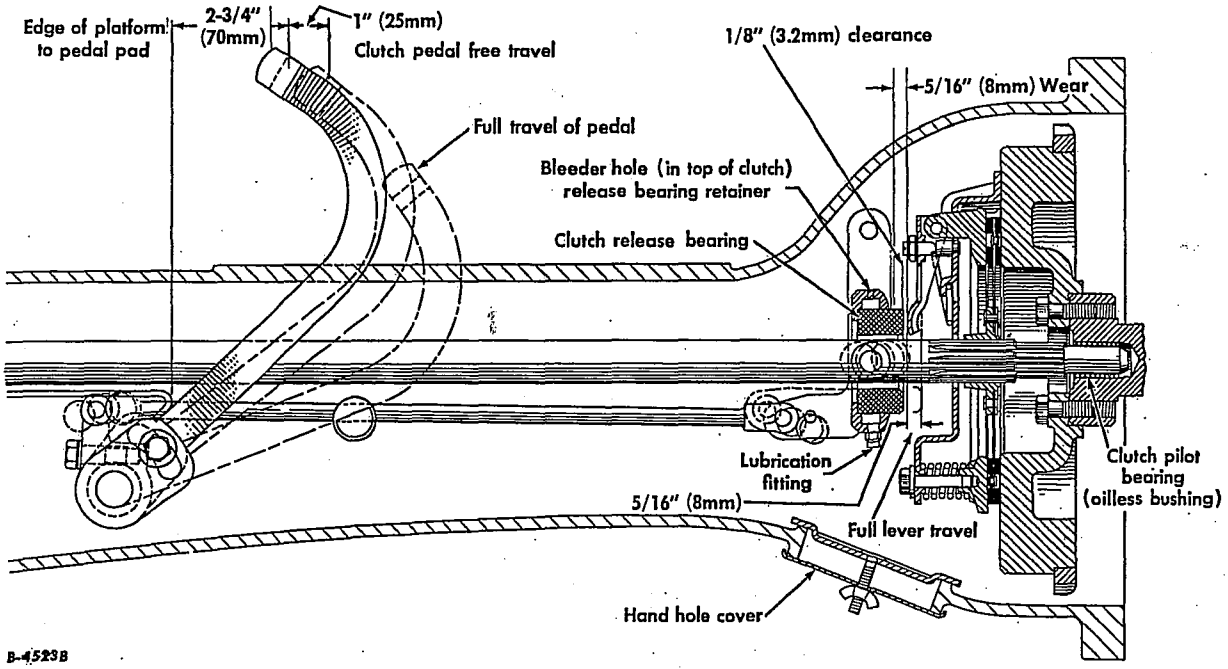
ADJUSTING THE ENGINE CLUTCH

A clearance of approximately 1/8-inch (3.2 mm) must be maintained between the engine clutch release bearing and the engine clutch release levers.

The correct free travel can be adjusted by loosening cap screw "A" on the outside of the clutch pedal, and rotating the slotted lever at "B" counterclockwise to a position which will give the 1-inch (25 mm) free pedal travel; then retighten the cap screw.



ADJUSTING THE ENGINE CLUTCH - Continued



INTERNATIONAL HARVESTER

STORING THE TRACTOR

STORAGE

When your tractor is not to be used for some time, it should be stored in a dry and protected place. Leaving your tractor outdoors, exposed to the elements, materially shortens its life.

Follow the procedure outlined below when your tractor is placed in storage.

Wash or clean and completely lubricate the tractor. See the **"LUBRICATION GUIDE".** Apply IH 251H EP grease or equivalent rust inhibited grease to all exposed cylinder piston rod surfaces.

Run the engine long enough to thoroughly warm the oil in the crankcase, then drain the oil. Change the oil filter as instructed in **"LUBRICATION".** Refill the crankcase with fresh oil as specified in the **"LUBRICATION TABLE"** and run the engine for five minutes.

Store the tractor so the tires are protected from light. Before storing the tractor, clean the tires thoroughly. Jack up the tractor so the load is off the tires, when it is to be out of service for a long period. If not jacked up, inflate the tires at regular intervals.

After the engine has cooled, remove the spark plugs and pour three tablespoonsful of SAE-30 Series 3 engine oil of good quality into each cylinder. Crank the engine two or three times to distribute the oil over the cylinder walls. Then reinstall the spark plugs.

Drain the entire cooling system and fill with a mixture of IH permanent type anti-freeze and water as specified on the container for the lowest expected temperature.

Drain the fuel from the fuel tank and carburetor, and clean out the fuel strainer glass bowl.

NOTE: Gum will eventually form in the fuel tanks, lines, and carburetor if the unit is not used and if the fuel system is not drained. Gum in the carburetor jets and passages affects engine starting. Gum can be dissolved with commercial carburetor cleaner.

Plug up the end of the exhaust pipe.

Cover the crankcase breather cap to seal the crankcase.

Clean the air cleaner as described under **"AIR CLEANING SYSTEM".** Cover the air cleaner to seal the air intake system.

Check the batteries at least once a month for water level and specific gravity. Keep the batteries close to full charge to prolong life and prevent freezing. **Refer to "BATTERY".**

Block or tie the clutch pedal in the fully disengaged position. This will keep the clutch facing from sticking to the flywheel or clutch pressure plate.

REMOVING FROM STORAGE

Be sure that the grade of oil in the engine crankcase is as specified in the **"LUBRICATION TABLE".**

Remove the plug from the exhaust pipe.

Remove the covers from the air cleaner and crankcase breather cap.

Check the level of the coolant in the radiator.

See that the battery is fully charged and that the terminal connections are clamped tightly.

Fill the fuel tank.

Release the clutch pedal.

Start the engine and let it run slowly. Do not accelerate the engine rapidly, or operate it at high speed immediately after starting.

CAUTION! Do not run the engine in confined areas such as storage buildings any longer than is necessary for immediate moving of the tractor into or out of the area. EXHAUST GASES ARE TOXIC. OPENING DOORS AND WINDOWS MAY NOT PROVIDE ADEQUATE VENTILATION.

COLD WEATHER PRECAUTIONS

When operating the tractor in temperatures of +32 degrees F. (0 degrees C.) or lower, observe the following precautions:

FUEL SYSTEM

Use only a winter grade fuel for ease of starting.

Clean water from the sediment bowl.

ELECTRICAL

All systems must be in good condition with batteries fully charged.

LUBRICATION

Be sure to use lubricant of the correct viscosity in the engine crankcase as specified in the **"LUBRICATION TABLE".**

COOLING SYSTEM

To prevent freezing of the cooling system, use IH permanent type anti-freeze. **See "COOLING SYSTEM".**

The use of alcohol as an anti-freeze is not recommended because methanol boils at +148 degrees F (64 degrees C).

NOTE: Use only one type of anti-freeze solution. Do not mix solutions, as it will be difficult to determine the exact amount of protection.

Never use any of the following in the cooling water as an anti-freeze — honey, salt, kerosene, fuel oil, glucose of sugar, calcium chloride, or any alkaline solution.

Refer to "SPECIFICATIONS" for the cooling system capacity.

LUBRICATION

The life of any tractor depends upon the care it is given. Proper lubrication is a very important part of that care.

Tractors shipped to destinations in United States of America, Canada, and Mexico have the engine crankcase filled with shipaway oil.

NOTE: This oil is not to be diluted with kerosene for cold weather operation.

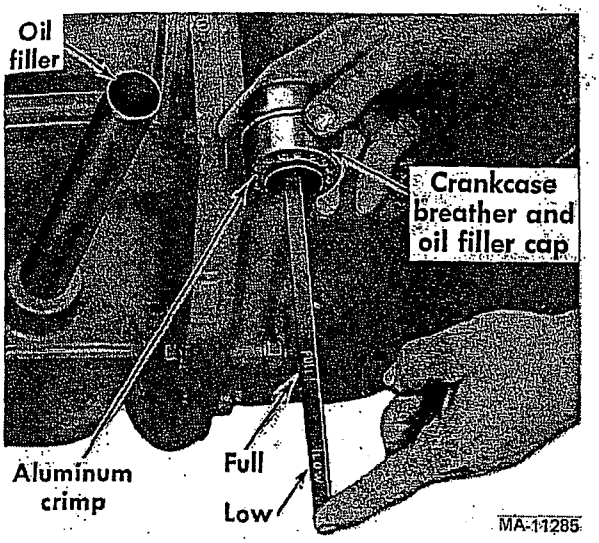
Shipaway oil should be used for the first 100 hours of engine operation. Oil added during first 100 hours must be of proper viscosity for temperature specified in "ENGINE OIL", "LUBRICATION TABLE", and "LUBRICATION GUIDE".

CRANKCASE BREATHER AND CHECKING THE OIL LEVEL

The crankcase oil filler cap has a bayonet-type oil level gauge attached to it. The oil level should never be above the "FULL" mark or below the "LOW" mark on the gauge. When checking the oil level the gauge must be withdrawn and wiped clean, then inserted all the way and withdrawn for a true reading.

NOTE: Stop the engine before removing the cap. Never check the oil level while the engine is running.

CRANKCASE BREATHER AND CHECKING THE OIL LEVEL - Continued



Checking the oil level in the crankcase.

CRANKCASE BREATHER SERVICE

The crankcase breather and oil filler cap **(See "CRANKCASE BREATHER AND CHECKING THE OIL LEVEL")** has an oiled aluminum crimp filler which acts as a dust filter for crankcase ventilation. Clean in solvent and reoil this breather each time the engine oil is changed.

ENGINE OIL

We recommend "I.H. Low Ash Engine Oil" for gasoline engines. This oil is specifically formulated to minimize spark plug fouling and exhaust valve failures, and provide maximum engine life.

If other than "I.H. Low Ash Engine Oil" is used, it must be designated "For Service MS" and as qualified "MIL-L-2104B". In new API code, these oils are usually designated as meeting both SD and CC requirements. For maximum engine life, these oils must contain a minimum of barium, calcium, or magnesium additives and should contain less than 0.5% sulfated ash.

Multi-viscosity numbered oils such as SAE 10W-30 or SAE 10W-40 must not be used above 32 degrees Fahrenheit (0 degree Celsius.)

GEAR LUBRICANT AND HYDRAULIC FLUID

Tractors shipped from the factory to destinations in the United States of America, Canada, and Mexico are filled with IH Hy-Tran fluid in the transmission and differential case, final drives, and hydraulic system.

Use IH Hy-Tran Fluid, if fluid is used which does not meet requirements of IH B-6 specification, International Harvester Company will not be responsible for substandard performance of the transmission and hydraulic components.

NOTE: Failures due to use of improper fluid or filters are not covered by the warranty. For maximum protection use IH Hy-Tran Fluid and filters.

LUBRICATION FITTING GREASE

Use IH 251H EP grease or equivalent #2 multi-purpose lithium grease, for lubrication fittings on which the hand lubricator is applied.

NOTE: Keep your supply of lubricating oil and grease absolutely clean and free from dust. Always use clean containers. Keep the lubricant clean and wipe dirt from the fittings before applying the lubricator.

OIL FILTER

The life of your engine depends upon clean oil being circulated to all bearings.

The purpose of the oil filter is to separate and remove the dirt and other foreign substances from the oil to prevent these injurious materials from being circulated to the engine. Under normal operating conditions, replace the filter element every 200 hours of operation.

Changing the Filter Element

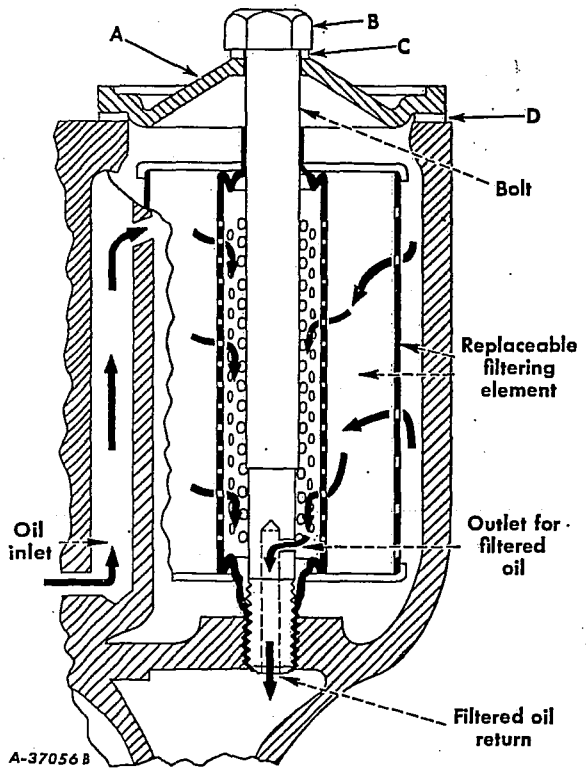
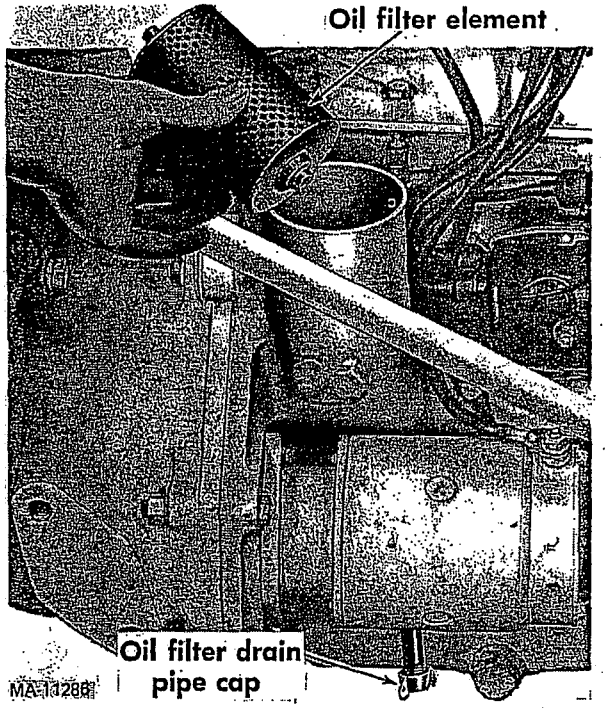


Diagram of oil flow through the filter.



Installing the new oil filter element.

Do not change the element while the engine is running.

1. Remove the oil filter drain pipe cap (see illustration) and allow the oil filter to drain completely.

2. Clean off filter cover "A" (in illustration) to prevent dirt from dropping into the filter when the cover is removed.

3. Unscrew and remove bolt "B" and gasket "C" in illustration.

4. Lift up and remove filter cover "A" and gasket "D" in illustration.

5. Remove the old element.

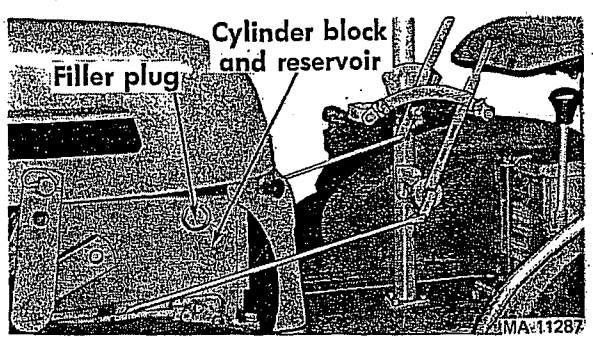
6. If the oil appears very dirty or sludgy when draining, flush out the filter case with kerosene. Before flushing, however, replace the bolt without the filter cover in order to prevent sludge from being flushed into the crankcase. When completely flushed and drained, replace the drain plug.

7. Inspect the small metering hole at the threaded end of the oil filter retainer bolt, and make sure it is not plugged. A plugged metering hole will impair or stop all oil flow through the oil filter element.

8. To install the new filter element, move gasket "C" up to the top of bolt "B" and place cover "A", gasket "D" and the new element on the bolt in their proper order. **See illustration.** Then install the entire assembly and be sure that filter cover gasket "D" seats properly. Reinstall and screw the bolt into the top of the filter base and also reinstall the oil filter drain pipe cap to the bottom of the oil filter drain pipe and tighten the bolt and cap securely.

9. Check the oil level in the crankcase to see that the new oil is up to the proper level **(See "CRANKCASE BREATHER AND CHECKING THE OIL LEVEL").** Start up the engine, be sure the oil pressure gauge needle moves indicating the lubricating oil is circulating through the engine, and inspect the filter for oil leaks.

TOUCH CONTROL LIFT SYSTEM FLUID LEVEL



Never operate the tractor without having sufficient Hy-Tran fluid in the reservoir. Insufficient fluid may cause damage to the Touch Control lift system.

If the Touch Control lift system does not operate in a satisfactory manner, check the fluid level in the reservoir or consult your International Harvester dealer.

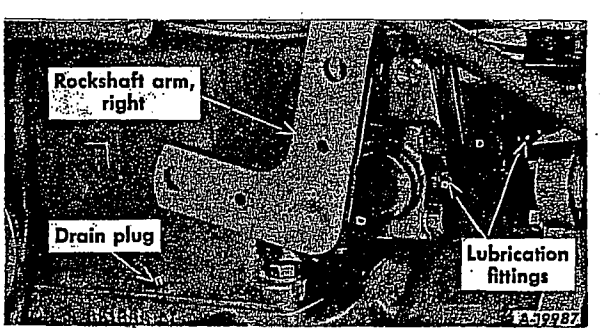
Before checking the fluid level, thoroughly clean the filler plug and surrounding area of the cylinder block and reservoir of all dirt and other foreign matter.

Remove the oil filler plug with gasket and place it in a clean container.

The fluid in the reservoir should be at a level to within 1/2-inch (13 mm) of the bottom of the oil filler hole.

Check the oil filler plug gasket which should be in perfect condition. Replace it with a new one if damaged or worn.

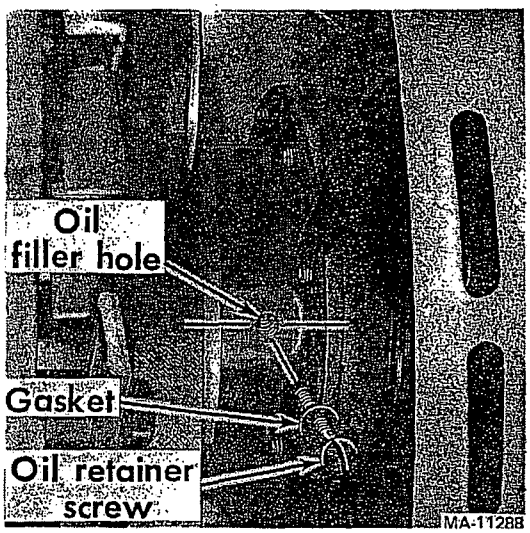
Reinstall the filler plug and gasket and tighten the plug sufficiently to prevent leakage of the Hy-Tran fluid.



TOUCH CONTROL LIFT SYSTEM FLUID LEVEL - Continued

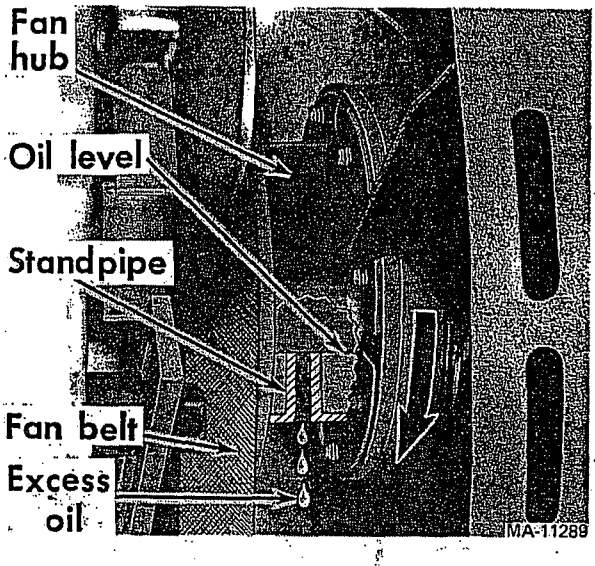
Daily or after every 10 hours of operation, lubricate the rockshaft arm and bearings located on right and left sides of tractor through the lubricator fittings. Use pressure-gun grease (chassis lubricant) and apply 2 or 3 strokes of lubricator, or sufficient grease to flush out the old grease and dirt.

FAN HUB LUBRICATION



Every six months or after every 500 hours of operation, whichever occurs first, the following procedure should be followed for the lubrication of the fan hub.

Turn the fan hub so that the oil retainer screw is in a horizontal position.



Remove the screw from the fan hub and fill the fan hub with engine oil to the level of the filler hole opening.

Rotate the fan hub so the oil filler hole is in the bottom position to allow excess oil to drain out through the standpipe.

To prevent any oil spilling on any part of the engine, use a good absorbing cloth to catch the excess oil dripping.

Reinstall and tighten the oil retainer screw.

LUBRICATION TABLE

Engine oils meeting standards as described under heading "Engine Oil" must be used in this engine.

Metric measurements are shown in parentheses.

Point of Lubrication	Capacity	Anticipated Air Temperature			
		Above +32°F (0°C)	+32°F (0°C) to +10°F (-12°C)	+10°F (-12°C) to -10°F (-23°C)	Below -10°F (-23°C)
Engine crankcase..... (with or without oil filter change)	3 qt. (2.8 litre)	IH (low ash) SAE-30 (See NOTE)	IH (low ash) SAE-10W	IH (low ash) 2¾ qt. (2.6 litre) SAE-10W w/½ pt. (.24 litre) kerosene or SAE 5W-20	IH(low ash) 2-½ qt. (2.37) litre) SAE-10 W w/1 pt. (.47 litre)kerosene
Point of Lubrication . . .		Lubricant			
Alternator-generator . . .	xxx	No lubrication required			
Air cleaner oil cup Donaldson type..... United type.....	1/2 pt. (.24 litre) 3/8 pt. (.18 litre)	SAE-10W or SAE-5W-20			
Battery ignition unit Distributor and drive housing ..... or Felt cam lubricator (in distributor)	xxx	IH 251H EP grease or equivalent #2 multi-purpose lithium grease			
	xxx	SAE-20 engine oil			
Transmission	3-1/2 pt. (1.54 litre)	Use IH Hy-Tran® Fluid. If fluid is used which does not meet requirements of IH B-6 Specifications, International Harvester Company will not be responsible for substandard performance of transmission and hydraulic components. NOTE: Failures due to use of improper fluid are not covered by warranty – FOR MAXIMUM PROTECTION USE IH HY-TRAN FLUID.			
Rear axle housing	1-3/4 pt. (.83 litre)				
Belt pulley housing	1/3 pt. (.16 litre)				
Touch-Control reservoir	4-1/4 pt. (2 litre)				
Steering gear housing ..	3/4 pt. (.35 litre)	IH Steering Gear Lubricant			
Front wheels.....	xxx	IH 251H EP grease or equivalent #2 multi-purpose lithium grease			
Lubrication fittings....	xxx	Use IH 251H EP grease or equivalent #2 multi-purpose lithium grease for fittings on which the hand lubricator is applied.			

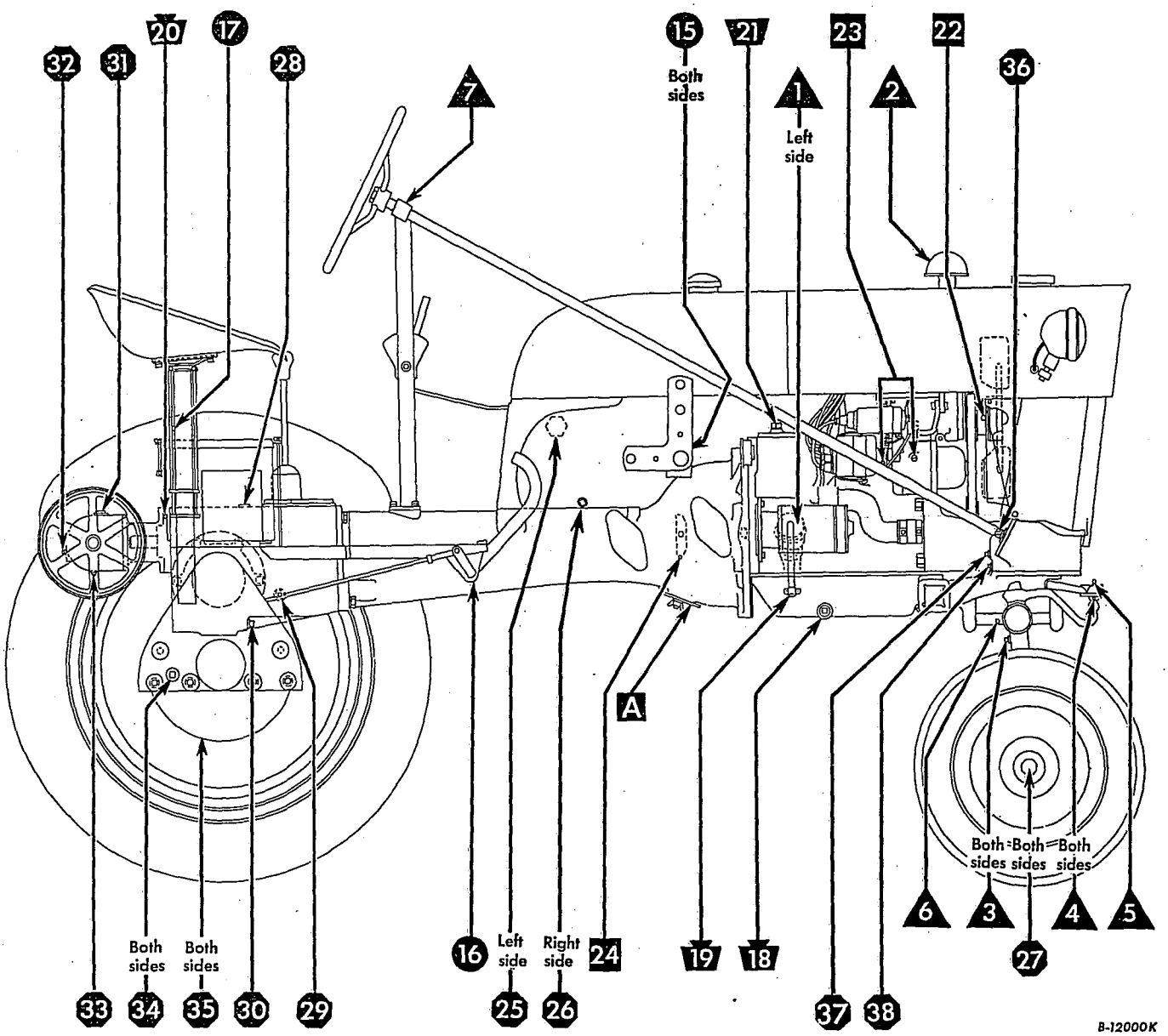
NOTE: Do not substitute SAE-10W-30 or 10W-40.

LUBRICATION GUIDE

The symbols around the reference numbers indicate the intervals of lubrication.

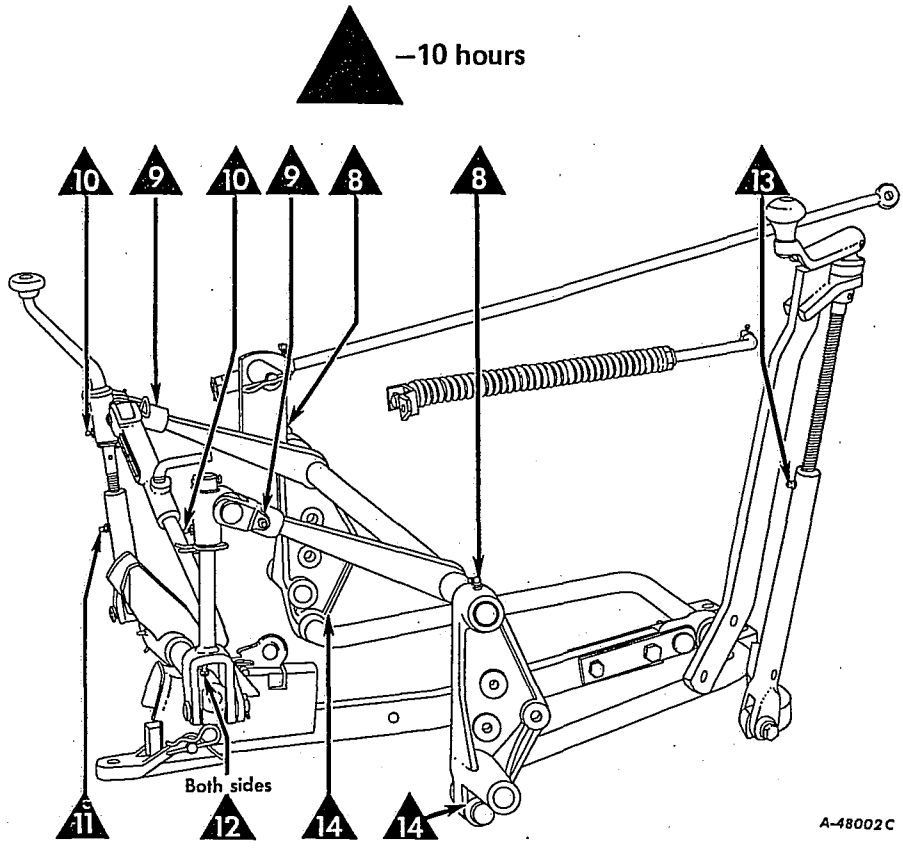
— 10 hours — 50 hours — 100 hours — 200 hours

— 500 hours — periodic



Side view of tractor.

The symbols around the reference numbers indicate the intervals of lubrication.



Fast-Hitch.

LUBRICATION GUIDE

The symbols shown around the reference numbers **in the illustrations** indicate the intervals of the lubrication. Paragraph numbers correspond to reference numbers in the illustrations.

▲ — **Daily or After Every 10 Hours of Operation**

1. Crankcase oil level gauge and filler cap.

Check the oil (with the engine stopped) and add sufficient new oil to bring it to the "FULL" mark on the bayonet gauge. Do not check the oil level while the engine is operating or operate the engine if the oil level is below the "LOW" mark on the bayonet gauge. If the oil level is checked after the engine has been stopped for some time, the oil level may show slightly above the "FULL" mark on the gauge. This is a normal condition as the result of oil draining back from the filter.

2. Air Cleaner.

Clean and refill the oil cup to the oil level bead with the same new oil as used in the engine crankcase.

3. Steering knuckle post (2).
4. Tie rod (2).
5. Tie rod ball seat.
6. Front axle pivot shaft.
7. Steering shaft support bracket.

Use IH 251H EP grease or equivalent #2 multi-purpose lithium grease and apply two or three strokes of lubricator, or sufficient grease to flush out the old grease and dirt. Lubrication points are the same for both fixed and adjustable front axles.

Fast-Hitch
8. Rockshaft plate bracket (2).
9. Rockshaft arm swivel (2).
10. Lateral link swivel, upper (2).
11. Leveling screw housing (1).
12. Lateral link swivel, lower (2).
13. Depth adjusting screw housing (1).
14. Bail bearing (in bail attaching bracket) (2).

Use IH 251H EP grease or equivalent #2 multi-purpose lithium grease and apply sufficient lubricant to flush out the old grease and dirt.

● — **Weekly or After Every 50 Hours of Operation**

15. Touch-Control rockshaft arms.
16. Clutch pedal shaft.
17. Seat spring.

Use IH 251H EP grease or equivalent #2 multi-purpose lithium grease and apply two or three strokes of lubricator, or sufficient grease to flush out the old grease and dirt.

Miscellaneous parts

Lubricate the clutch and brake pedal connections with a few drops of engine oil.

LUBRICATION GUIDE

— After Every 100 Hours of Operation

18. Crankcase drain plug.
19. Oil filter drain.

While the oil is warm, remove the crankcase drain plug and oil filter drain pipe cap and drain all of the oil from the crankcase and oil filter. Reinstall the drain plug and cap. Remove the crankcase filler cap (1). Refill with new oil up to the "FULL" mark on the oil level gauge. **Refer to the "LUBRICATION TABLE".**

20. Power take-off shaft.

Use IH 251H EP grease or equivalent #2 multi-purpose lithium grease and apply one or two strokes of the lubricator.

— After Every 200 Hours of Operation

21. Oil filter cover.

Replace the oil filter element every second oil change (200 hours of operation). Remove the crankcase drain plug (18) and allow all the oil to drain out. Remove the oil filter drain (19) and the filter cover (21), and remove the used filter element. Reinstall the drain plug (18) and install the new filter element. **See "Oil Filter".**

— Every Six Months or After Every 500 Hours of Operation

22. Oil retainer screw.

Turn the fan hub so oil retainer screw (22) is to the right horizontal position. Remove the screw and fill the hub with engine oil to the level of the filler hole opening. Now turn the fan hub so the oil filler hole is on the bottom to allow excess oil to drain off. Replace the oil retainer screw.

23. Distributor (battery ignition unit).

Distributors with grease plugs: Remove the grease plugs and insert lubrication fittings. Apply IH 251H EP grease or equivalent #2 multi-purpose lithium grease to the distributor fitting until a small quantity comes out of the relief hole opposite the plug.

Distributors with felt cam lubricator: Remove the distributor cap and the distributor rotor and apply 3 to 5 drops of SAE-20 engine oil to the felt in the end of the breaker cam.

Apply several strokes of the hand lubricator to the drive housing fitting.

24. Clutch release bearing fitting.

Use IH-251H EP grease or equivalent #2 multi-purpose lithium grease. After every 1,000 hours or at least once every year, apply a few strokes of the lubricator to clutch release bearing fitting (24) or just enough grease until it starts to come out of the bleeder hole on top of the bearing retainer. To reach the fitting, remove the clutch housing handhole cover "A".

● — Periodic

Touch control lift system reservoir

25. Oil filler and oil level plug.

Check the Hy-Tran fluid in the reservoir periodically, and keep the lubricant at a level to within 1/2-inch (13 mm) of the bottom of the oil filler hole.

26. Oil drain plug.

To change the fluid, remove the drain plug (26) and allow all the fluid to drain. Reinstall the drain plug. Remove the oil filler plug (25) and fill the reservoir with approved lubricant. Reinstall the oil filler plug and tighten the plug sufficiently to prevent leakage of the Hy-Tran fluid. **Refer to the "LUBRICATION TABLE"** for the approved lubricant and capacity.

27. Front wheels.

Repack the front wheel bearings using IH 251H EP grease or equivalent #2 multi-purpose lithium grease when severe or unusual dusty, muddy or wet conditions exist. Under normal operating conditions, the front wheel bearings will require little if any lubrication for several years.

Transmission

28. Oil filler plug.
29. Oil level plug.
30. Oil drain plug.

Check the oil level periodically. Keep the lubricant up to level plug (29) on the left side of the transmission case. Change the oil in the transmission case at least once a year, preferably before freezing weather sets in. However, do not drive the tractor more than 1,000 hours without changing the oil. Remove drain plug (30) and allow all oil to drain out. Reinstall the drain plug and remove filler plug (28) and level plug (29). Refill with approved lubricant up to the level plug opening and reinstall the plugs. **Refer to the "LUBRICATION TABLE"** for the approved lubricant and capacity.

Belt Pulley Housing

31. Filler plug.
32. Level plug.
33. Drain plug.

Check the oil level periodically. Use approved lubricant **(Refer to the "LUBRICATION TABLE")** and keep the lubricant up to the level plug (32). Drain and refill the housing each time the oil is changed in the transmission case. To change the oil, remove the drain plug (33) and allow all the oil to drain. Then reinstall the drain plug. Remove filler plug (31) and level plug (32). Fill to the level plug opening and reinstall the plugs.

LUBRICATION GUIDE

● — Periodic

Rear Axle Housing

34. Oil filler and level plug (2).
35. Oil pan (2).

Check the oil level periodically. Keep the lubricant up to level plug (34) in each rear axle housing. Remove the drawbar to get at the level plug in the left housing. Change the oil at least once a year. However, do not drive the tractor more than 1,000 hours without changing the oil. To drain, remove rear axle housing pan (35). Clean the pan and reinstall it. Remove plug (34) and fill up to this level with approved lubricant. Reinstall the plug. **Refer to the "LUBRICATION TABLE"** for the approved lubricant and capacity.

Steering Gear Housing

36. Filler plug.
37. Level plug.
38. Drain plug.

Check periodically and add sufficient approved lubricant to the level of plug (37). Remove filler plug (36) and level plug (37) and fill with approved lubricant to the level plug opening. Reinstall the plugs. **Refer to the "LUBRICATION TABLE"** for the approved lubricant and capacity.

Miscellaneous Parts

Occasionally put a few drops of engine oil on the engine control linkage, such as the engine speed control rod, governor connections, etc.

SPECIFICATIONS

CAPACITIES (Approximate – U.S. Measure)

Fuel tank	7-1/2 gal. (28.4 litre)
Water cooling system	9-3/4 qt. (9.2 litre)
Crankcase pan	3 qt. (2.8 litre)
Transmission case	3-1/2 pt. (1.66 litre)
Rear axle drive housing (each)	1-3/4 pt. (.83 litre)
Steering gear housing	3/4 pt. (.35 litre)
Air cleaner oil cup (Donaldson)	1/2 pt. (.24 litre)
Air cleaner oil cup (United)	3/8 pt. (.18 litre)
Belt pulley housing	1/3 pt. (.16 litre)
Touch-Control system	4-1/4 pt. (2 litre)

ENGINE

Cylinders	4
Bore	2-5/8-in. (66.6 mm)
Stroke	2-3/4-in. (69.9 mm)
Engine speed (governed)	
Low idle speed	475 rpm
High idle (governed speed)	2,080 rpm
Full load (governed speed)	1,900 rpm
Spark plug gap	.025-in. (.64 mm)
Valve clearance (engine cold)	.015-in. (.38 mm)
Carburetor	updraft
Distributor breaker point opening	.020-in. (.51 mm)
Ignition timing (at engine high idle)	16 degrees BTDC

TRANSMISSION (Three Speeds)

(Speeds based on 9.5-24 R1 pneumatic tire size and 2080 rpm no load engine speed) (Speed will decrease with increased load)

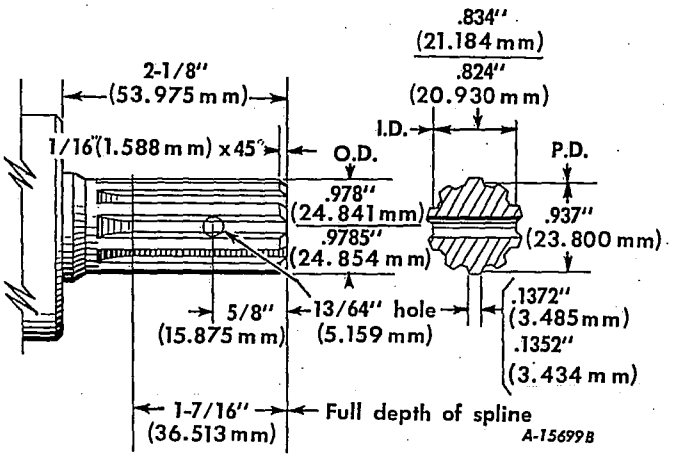
Speed: 1st	3.1 mph (5 Km/hr)
2nd	4.1 mph (6.6 Km/hr)
3rd	9.2 mph (14.8 Km/hr)
Reverse	3.4 mph (5.5 Km/hr)

POWER TAKE-OFF SHAFT SPEED (Counterclockwise Rotation)

Low idle speed	475 rpm
High idle (governed speed)	2,080 rpm
Full load (governed speed)	1,900 rpm

Power take-off shaft spline dimensions.

The power take-off shaft connection is a 15/16-inch (23.8 mm) pitch diameter, ten-tooth involute spline with a 30 degree pressure angle, machined for outside diameter fit.



BELT PULLEY

Pulley speed	
Low idle speed	392 rpm
High idle (governed speed)	1,718 rpm
Full load (governed speed)	1,570 rpm
Belt speed at 2080 rpm engine speed. (Speed will decrease with load) (6-inch (152.4 mm pulley)	2,699 ft. per min. (13.71 metres/sec)
(7-5/8-inch (193.7 mm) pulley*	3,430 ft. per min. (17.42 metres/sec)
(9-inch (228.6 mm) pulley	4,048 ft. per min. (20.56 metres/sec)
Pulley face	4-3/4-in. (121 mm)

ELECTRICAL SYSTEM

System voltage	12 volt
Alternator cranking motor	37 amperes
Light switch	4 position
Lamps—all glass, sealed beam units	12-16 volt
Fuse (cartridge type)	AGC- 10 amp.

CLUTCH

Single-plate, dry-disc, spring-loaded	6-1/2-in. (165 mm)

FOOT BRAKES

External contracting on drums.

WEIGHT (Without operator or Fast-Hitch)

To front	606 lbs. (275 kg)
Total rear	833 lbs. (378 kg)

GENERAL

Length, over-all	99-3/8-in. (2,524 mm)
Width, over-all-minimum treads	48-1/4-in. (1,226 mm)
Width, over-all-maximum treads	64-1/4-in. (1,632 mm)
Height, over-all (to top of steering wheel)	62-3/4-in. (1,594 mm)
Tread, front (adjustable front axle, 4-in. (102 mm) intervals)	40-5/8-in. (1,032 mm) & 56-5/8-in. (1,438 mm)
Tread, rear (adjustable-reversible wheels and rims, 4-in. (102 mm) intervals	40 (1,016 mm) to 56 in. (1,422 mm)
Ground Clearance for crops: Under front axle	20-3/8-in. (518 mm)
Under rear axle	20-3/4-in. (527 mm)
Quick-attachable drawbar (adjustable):	
Normal height	14-3/8-in. (365 mm)
High and low positions	12-3/8-in. (314 mm) & 16 in. (406 mm)
Lateral adjustment	11-3/8-in. (289 mm) on each side of center hole
Fast-Hitch drawbar: Height above ground	7-in. (178 mm) to 22-in. (559 mm)
Lateral movement	9-1/2-in. (241 mm)
Minimum turning radius with minimum treads	
With brake applied	8-1/4 ft. (2,515 mm)

TIRES

Tire inflation

	Minimum	Maximum
Rear tire inflation	12 psi (83 kPa)	
Front tire inflation		
4.00-12I-1	20 psi (138 kPa)	36 psi (248 kPa)
4.00-12F-2	20 psi (138 kPa)	44 psi (303 kPa)

Tire Load rating

Maximum rear tire load (per tire)	1,210 lbs. (549 Kg)
Maximum front tire load (per tire)	
at minimum inflation	
4.00-12I-2 tire	450 lbs. (204 Kg)
4.00-12F-2 tire	330 lbs. (150 Kg)
at maximum inflation	
4.00-12I-1 tire	630 lbs. (286 Kg)
4.00-12F-2 tire	520 lbs. (236 Kg)

*Supplied with belt pulley attachment.

Specifications are subject to change without notice.

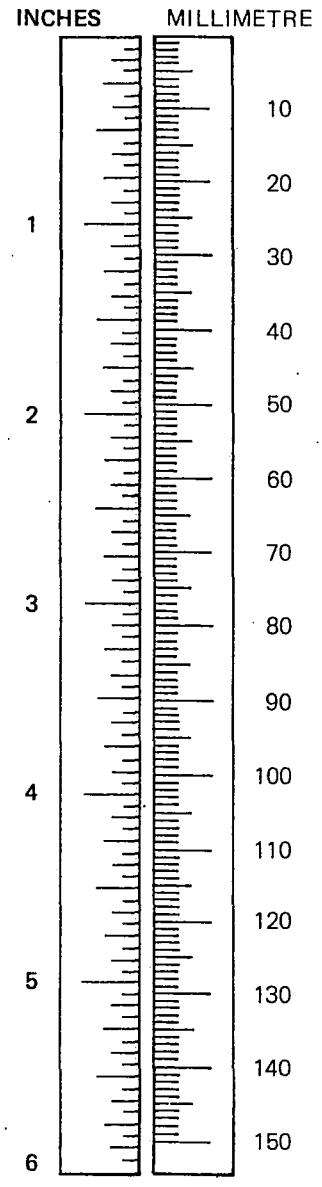
ATTACHMENTS AND ACCESSORIES

The tractor is used for so many different types of work and is called on to operate under so many different conditions that a considerable variety of equipment is necessary to adapt it to the varied requirements of the user.

When you purchased your tractor, you probably had it completely equipped for your particular needs at that time. However, later you may wish to obtain some of the attachments or accessories listed below. These items can be purchased from and installed by your International Harvester dealer.

Type of Equipment	Type of Equipment
t Pulley and/or Power Take-Off	Pull Bar Extension (Tractors with Fast-Hitch)
Luxe Upholstered Seat achable Seat Pads	Rear Wheel Weights
t-Hitch nt Axle, Adjustable nt Wheel Weights	Tire Pump for Pneumatic Tires Touch-Control
h Altitude Cylinder Head n	Valve Rotators

METRIC (SI) MEASUREMENTS



English Unit	Metric Equivalent (SI)
	Area
1 square inch	6.45 cm^2 - square centimetre
1 acre	0.405 hm^2 - hectare
	Force
1 pound (force)	4.45 N - newton
	Length
1 foot	304.8 mm - millimetre, 30.5 cm - centimetre, 0.305 m - metre
1 inch	25.4 mm - millimetre, 2.54 cm - centimetre
1 mile	1609 m - metre, 1.61 km - kilometre
1 pound	0.454 kg - kilogram
	Power
1 horsepower	0.746 kW - kilowatt
	Pressure
1 psi	6.89 kPa - kilopascal, 0.00689 MPa - megapascal
	Temperature
1 degree Fahrenheit	$\frac{(t - 32)}{1.8}$ °C - degree celsius
	Torque
1 lb. (force)-ft.	1.356 N·m
	Velocity
1 mile per hour	1.61 km/hr - kilometre per hour
	Volume
1 bushel	0.035 m^3 - cubic metre
1 gallon (US)	3.79 l - litre
1 quart (US)	0.946 l - litre

INTERNATIONAL HARVESTER COMPANY
401 NORTH MICHIGAN AVE. / CHICAGO, ILLINOIS 60611 / U.S.A.

1 084 506 R1 3-76
PRINTED IN UNITED STATES OF AMERICA